Issue 103
PS
1961 Series
THE
PREVENTIVE
MAINTENANCE
MONTHLY
SHIELD: WASHED TOO OFTEN, LEATHER GRIP WARPED, DRY, RIVETS RUSTED.
HELMET: VISOR LOOSE, SWIVEL BOLT MISSING.
SHIN GUARDS: STRAPS WATER-LOGGED—LOOSE.
SWORD: BLADE DULL, LEATHER HANDLE LOOSE, TOO MUCH POLISH.
Will EISNER
SUMMA BLITZOLA

ON MAINTENANCE RECORDS— "IT'S TAPER"

Dear Half-Mast,

When is somebody going to get on the cotton-pickin' ball and do something about all the paperwork we've got to do with maintenance of our Army equipment?

It seems like I spend as much time fighting the paper battle as I do getting the work done. And there seems to be different systems for each tech service's equipment.

It's all real confusing. How about somebody slashing through all the red tape and get something set up that'll require only the record-keeping that's really needed—and in a more simplified form?

Sgt J. E. C.

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ALL THE WAY!

Dear Sergeant J. E. C.,

The Millenium has arrived.

The Army has flashed the word. It's a TAG letter, Subj: The Army's Plans For Equipment Record Revision—dated 28 Feb 61.

Action is taking place in the form of OPERATION TAPER. When it's finished some of your problems ought to taper off a bit.

OPERATION TAPER is aimed at simplifying the Army's equipment record system. For this test operation, tank-automotive equipment is being used.

And it's only going on at these locations: Fort Devens, Fort Knox, Fort Campbell, Fort Lewis and the 4th Armored Division.

Don't get all het up if this new system's not in your outfit this week. The places listed above will test it, work out the bugs—then the Army gets the improved version

Half-Mast

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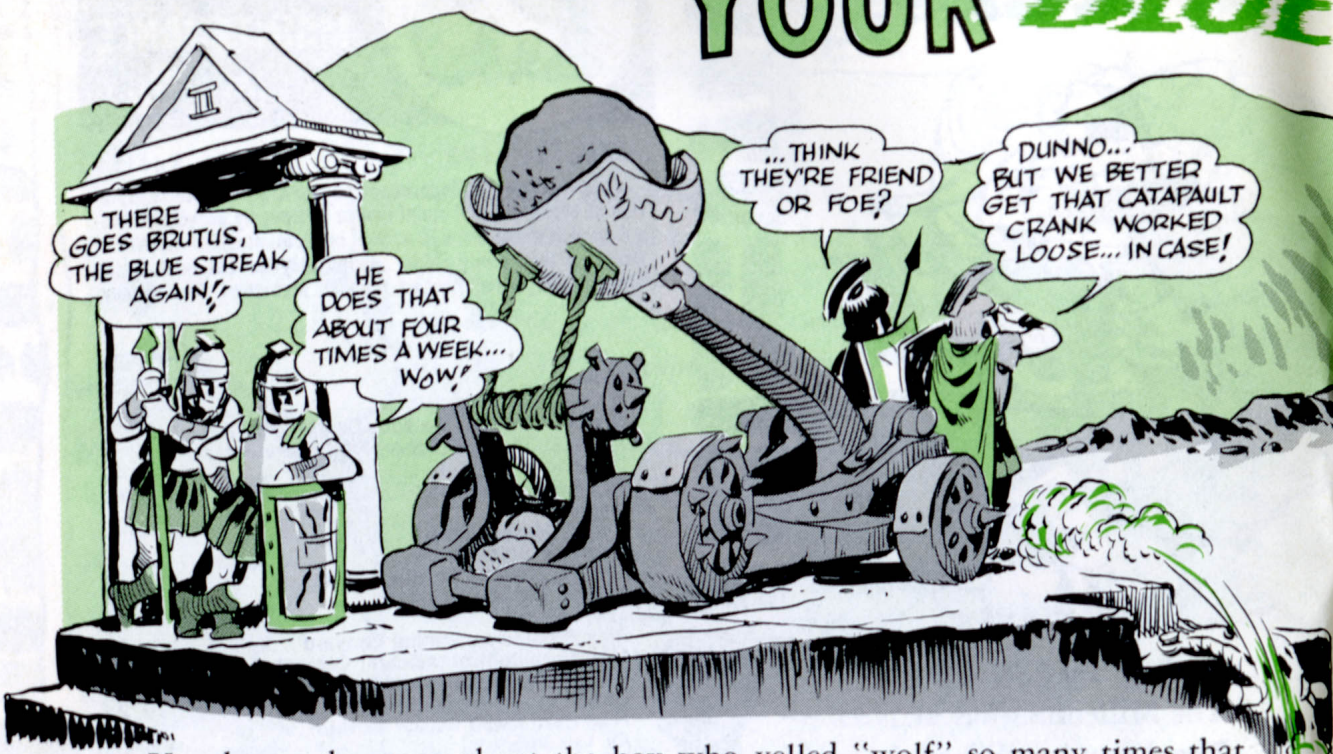
USE, DON'T ABUSE—

YOUR BLUE



You know the story about the boy who yelled "wolf" so many times that when the real McCoy lit out after him, nobody paid any nevermind to his shouts.

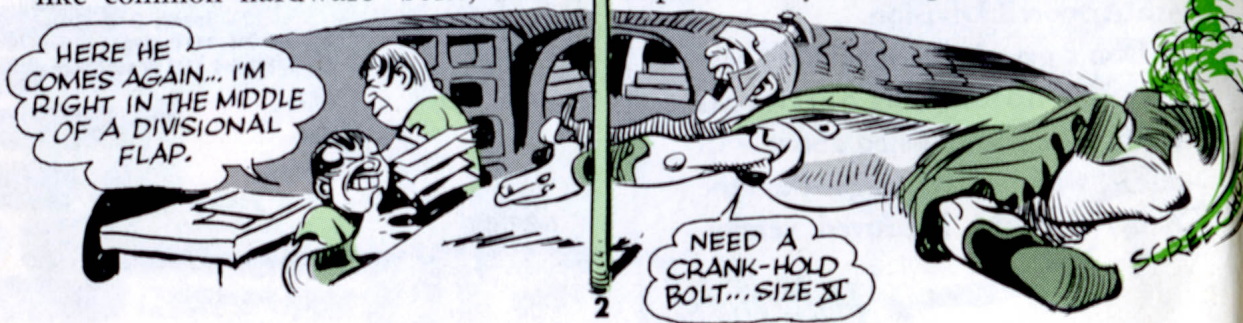
Then there's the one about the guy who bumped off the goose who was giving out with the golden eggs.

Well now . . . they're good yarns to remember next time you artillery, rocket or guided missile guys go to fill out a Blue Streak requisition for an Ordnance, Engineer, Signal or Quartermaster item.

Blue Streaking is a good deal . . . you get what you want—fast. But, and double but, you can get in the bad habit of hitting your support unit with a Blue Streak for just about anything and everything. That includes things like common hardware—bolts, screws and washers.

Or you can fire off a Blue Streak for an item to add to the supply you already have. That's no good either.

The point is that Blue Streaks get special treatment from supply. People stop what they're doing to work on 'em.



USE, DON'T ABUSE—

YOUR BLUE STREAK REQUISITIONS

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FOR FAST ACTION

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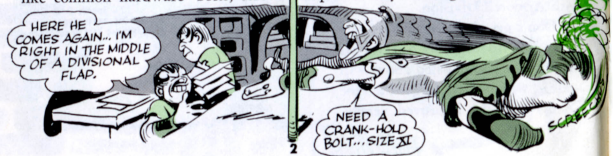


Just suppose your support unit is working on a routine requisition from another battery in your battalion when your Blue Streak comes through the door like a bolt. That's OK if you're in bad shape for the part you requisitioned. You know . . . an emergency. But if it's not, you're fouling up the other outfit by maybe delaying their requisition. And you're wasting money because it takes more'n a little loot to process a Blue Streak.

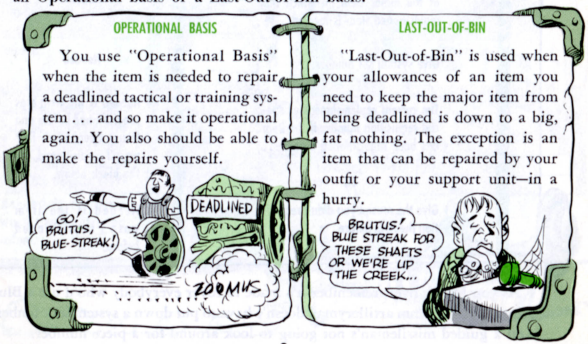
When you come right down to it, since you do organizational maintenance, you have to be in two situations to fire off a "legal" Blue Streak. You send it on an **Operational basis or a Last-Out-of-Bin basis.**

OPERATIONAL BASIS

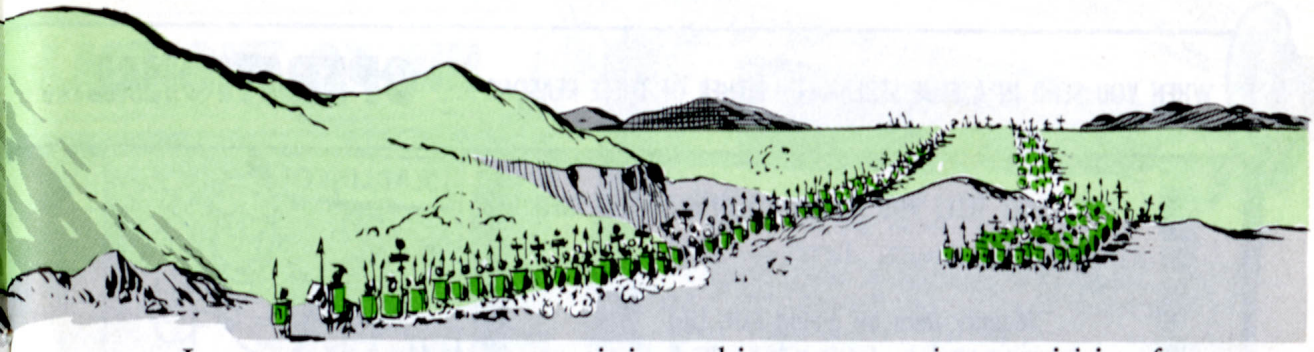
You use "Operational Basis" when the item is needed to repair a deadlined tactical or training system . . . and so make it operational again. You also should be able to make the repairs yourself.

LAST-OUT-OF-BIN

"Last-Out-of-Bin" is used when your allowances of an item you need to keep the major item from being deadlined is down to a big, fat nothing. The exception is an item that can be repaired by your outfit or your support unit—in a hurry.



STREAK REQUISITIONS



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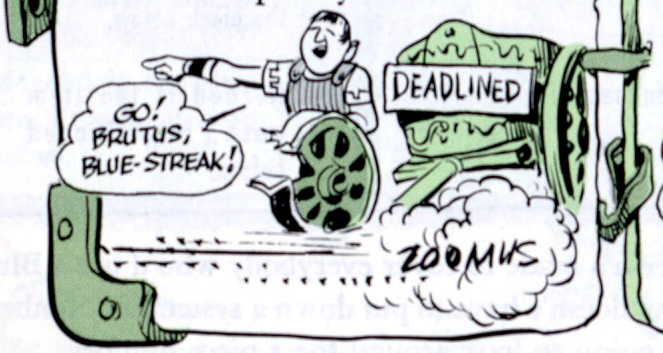

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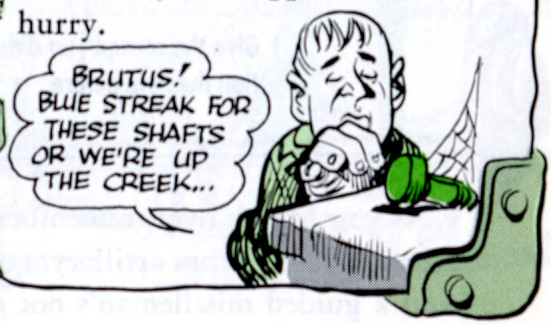

So now you know the when and what of Blue Streaks. Now comes a chart that shows what should be on a Blue Streak requisition. You read it like a mileage chart on a road map—when you want to know how far it is from one town to another.

WHEN YOU SEND IN A BLUE STREAK FOR EITHER OF THESE REASONS . . .	OPERATIONAL . . .
THE CHART TELLS YOU WHETHER YOU NEED THIS INFO:	
Identify item by giving FSN, Ord part number, piece number or "call out" identification—the kind you find in supply manuals and TM's.	Needed
FSN or part number of next higher assembly. If not available, give detailed nomenclature of this next higher assembly.	Needed
If it applies, give serial number of next higher assembly.	Needed
Nomenclature and serial number of the major item on which the requisitioned item is located.	Needed
Give system set number.	Needed
The current replenishment or special requisition number if the item has been requisitioned before . . . OR	Needed if the item was requisitioned before and hasn't been filled. If it wasn't requisitioned, see the block below.
Give the reason you didn't requisition the item before.	Needed if the item wasn't requisitioned before.

As you look it over, remember it's made to cover everybody who'd use a Blue Streak. So a 105-mm artilleryman doesn't have to put down a system set number. And a guided missileman's not going to look around for a piece number.

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Identify item by giving FSN, Ord part number, piece number or "call out" identification—the kind you find in supply manuals and TM's.	Needed	Needed
FSN or part number of next higher assembly. If not available, give detailed nomenclature of this next higher assembly.	Needed	Needed for assembly items but not for common (those that're used in more'n one place) items.
If it applies, give serial number of next higher assembly.	Needed	Needed for assembly items but not for common items.
Nomenclature and serial number of the major item on which the requisitioned item is located.	Needed	Doesn't apply.
Give system set number.	Needed	Needed
The current replenishment or special requisition number if the item has been requisitioned before . . . OR	Needed if the item was requisitioned before and hasn't been filled. If it wasn't requisitioned, see the block below.	Needed if you requisitioned the item before, but you haven't gotten it. If you didn't requisition it, take a look at the block below.
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ONE MORE THING... BE CAREFUL WITH THOSE NON-STOCKED (ORD-9-TYPE) ITEMS. BEFORE YOU SHOOT OFF A **BLUE STREAK,** GET TOGETHER WITH YOUR SUPPORT UNIT TO IDENTIFY THEM AS THOROUGHLY AS POSSIBLE... AND **JUSTIFY** YOUR NEED FOR THEM.

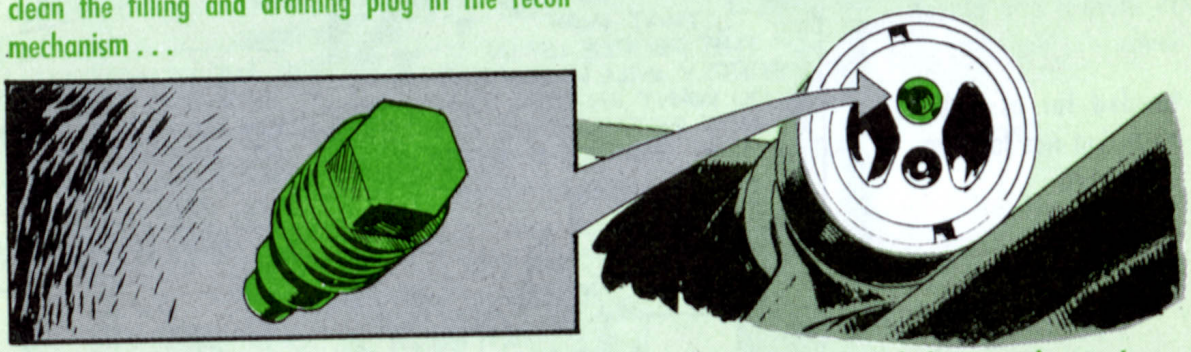
...THAT WAY THE PEOPLE UP IN SUPPLY WILL KNOW WHY YOU WANT AN ITEM THAT'S NOT ESTABLISHED IN THE SUPPLY SYSTEM.

AND REMEMBER ...TRY AND TAKE A LOOK NOW AND AGAIN AT THESE PUBS: **AR 711-16, SB9-138, SB10-561** AND **SB11-228!**

TRY FLAVIUS... HE'S BLUE STREAKED ALL THE WHEELS IN THE LEGION ...HE'S LOADED WITH 'EM!

There sure is a right smart bit of scoop in TB ORD 605 (19 May 55) for you field artillerymen. That'd be paragraph 5, section b(1).

In case you've skipped by it, it says you want to clean the filling and draining plug in the recoil mechanism . . . and the oil valve cavity the plug goes in to.



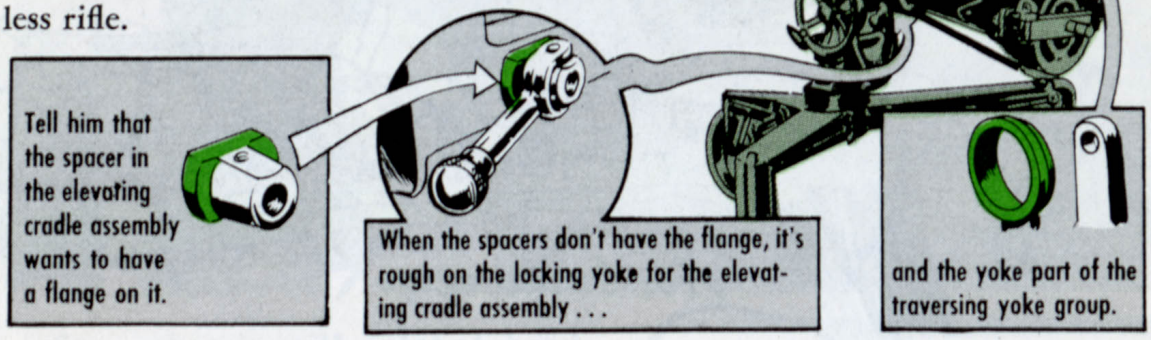
And . . . as the TB says, you can clean the cavity by using a piece of lintless cloth wrapped around the end of a dowel.

The dowel doesn't want to be over a $\frac{3}{16}$ inch in diameter. Use another piece of lintless cloth for cleaning the plug threads. Do the cleaning before you add any oil.

Maybe you don't think you'll come across any dirt or stuff. Don't bet on it—unless you've been doing the cleaning all along.

WASHER NEEDED

Next time your support unit man comes around, ask him if he has the word about the spacer in the M79 mount for the M40A1 106-mm recoilless rifle.



To put the icing on the cake, pass the word that all that needs doing is to weld a ½ x 1⅜-in flat washer (FSN 5310-012-0390) on to the spacer—making sure the hole in the washer lines up with the hole in the spacer. After the welding's done, the unpainted parts get hit with black oxide paint.

If the firing cable (ORD P/N 7307511) and washer get in each other's way, try grinding $\frac{1}{32}$-in from the outside diameter of the washer.

ONCE ONLY

It's the latest . . . the brand-spanking newest scoop on cleaning your small arms. And here it be.

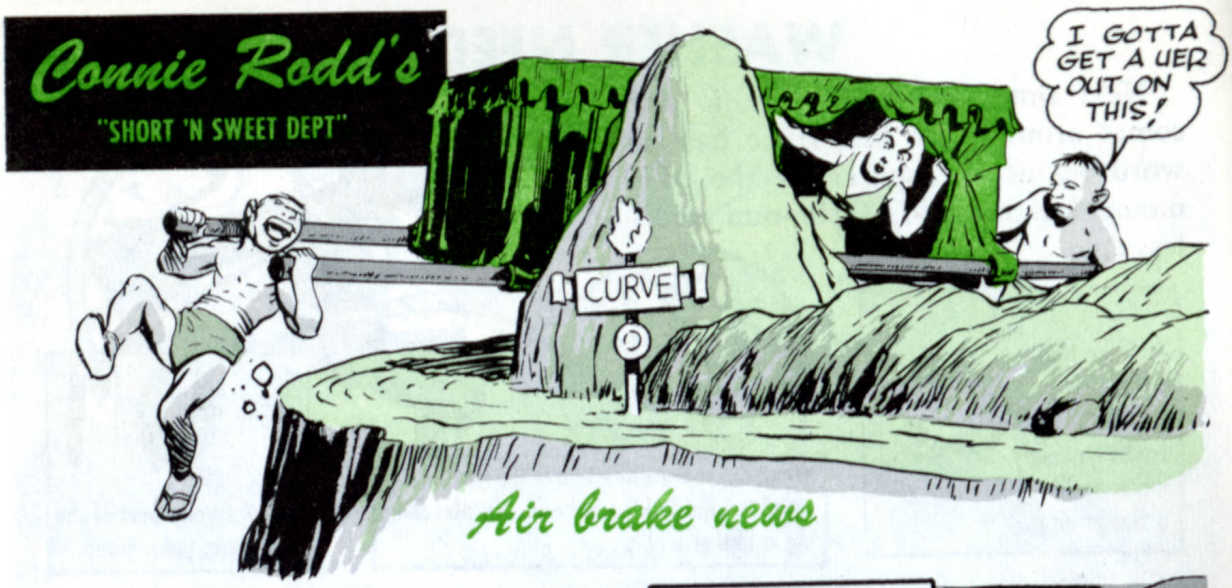
After you've fired the weapon, you clean it **once** only. You do the cleaning the way it says in your FM and then put on lubricating oil—PL Special if the temperature is above 0°F . . . and LAW when it's below 0°F.

Now . . . if'n your weapon gets used just for drills, training, classroom instruction and the like, you clean and oil it the same way after you're through handling it. In other words . . . treat it like it's just been fired.

And if you don't use your weapon for a long time . . . then you clean and lubricate it—also as if it's just been fired—every 90 days. 'Course . . . if it needs a cleaning sooner, don't wait for the 90 days to go by.

There's one catch to this business of cleaning your small arms only once. Seeing's how it's a one-time deal, you want to make sure you do a darn good cleaning job while you have your mitts on the cleaning materials.

You can see the official word on this one-time cleaning in the lubrication orders for the weapons once the LO's hit your unit.

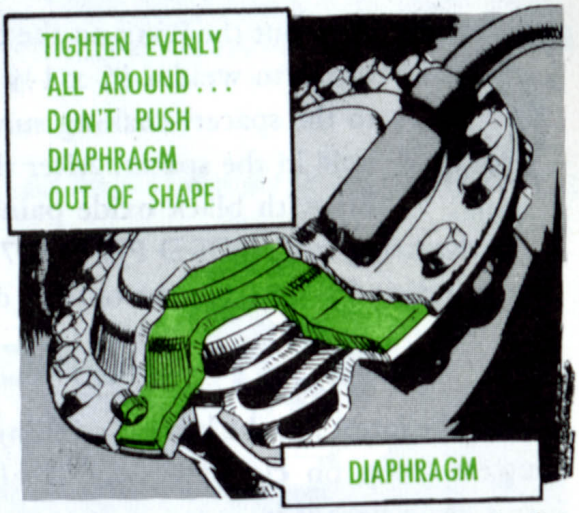


Air brake news

Some eager beavers have been bearing down too hard with the wrench when they tighten the bolts on the air brake chambers of their trucks and trailers. This cuts the diaphragm gasket and sometimes causes a leak.

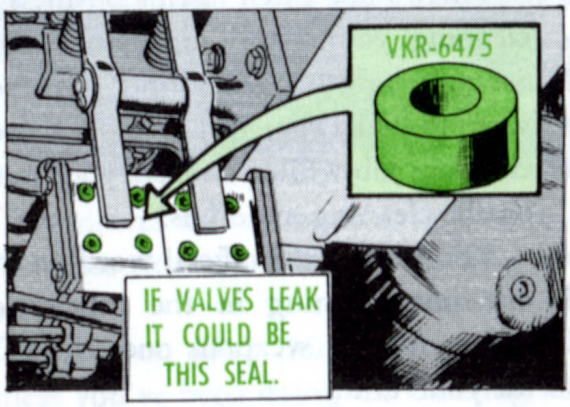
The bolts need to be tightened up just enough to make the diaphragm airtight . . . you can easy check this by covering the whole chamber with soap suds and seeing if you got any leaks.

The trick is to tighten all bolts evenly and not push the diaphragm out of shape.



You can't afford to have any leaks, but making with the muscle is more likely to cause leaks than prevent 'em.

VTR's valves leaking?



Are the crane and boom load limit valves on your M51 tank recovery vehicles leaking? Ten chances out of nine the leak is in the seal listed as VKR-6475 in Fig. 158, page 234, TM 9-2320-204-35 (May 59). Your Ordnance support can requisition a new seal under FSN 5330-587-4244 and put it in for you.

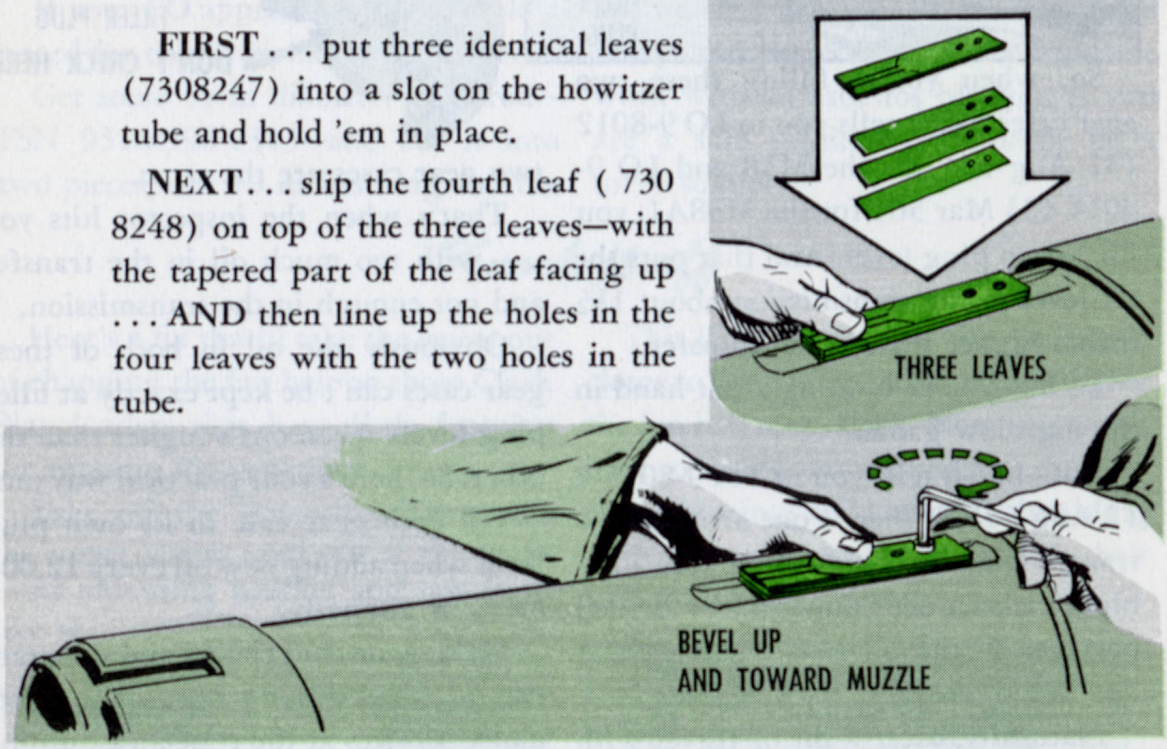
Leaving your howitzer

So . . . there's still a lot of head scratching going on about the right way to install the gate valve assemblies on the M52 SP 105-mm howitzer.

The big headache comes when you try to figure out how the four leaves get put in each of the slots on the tube.

FIRST . . . put three identical leaves (7308247) into a slot on the howitzer tube and hold 'em in place.

NEXT. . . slip the fourth leaf (730 8248) on top of the three leaves—with the tapered part of the leaf facing up . . . AND then line up the holes in the four leaves with the two holes in the tube.



AND now fasten the leaves with the two No. 8 x ⅜-in socket-head screws and two No. 8 internal-teeth lock washers. That's it.

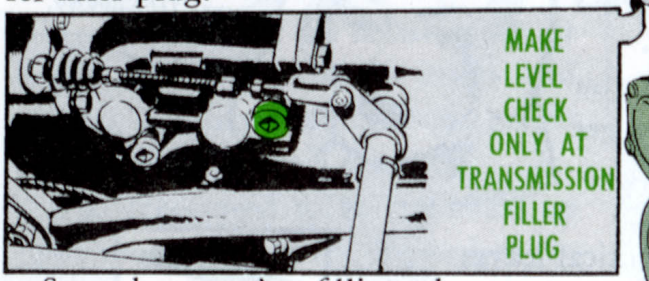
Install the rest of the assemblies in the tube like this and you've got it made.

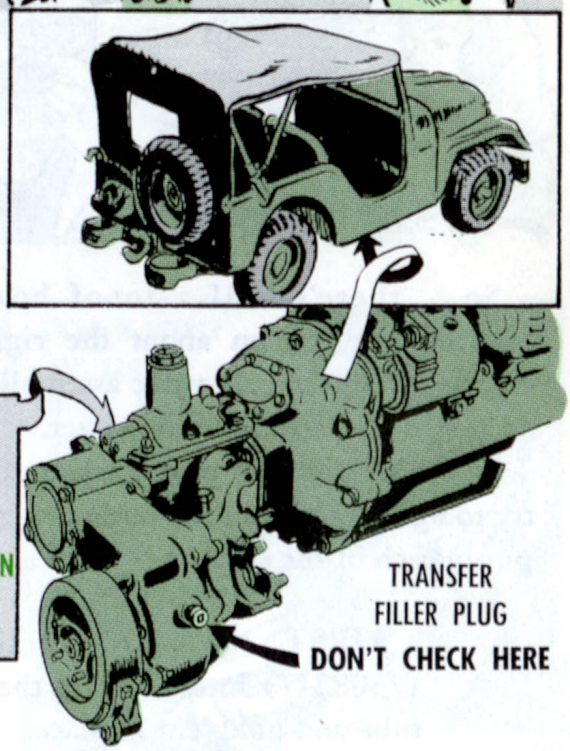
High-low game

Take the high level or take the low—the inspector may gig you either way.

Believe it or not, that's the way it is when you're checking the oil levels on transfers and transmissions of the M38 and M38A1 Jeeps.

The transmission oil filler plug is about 1½ inches higher than the transfer filler plug.





So, when you're filling these two gear cases like it tells you in LO 9-8012 (31 Aug 55) for the M38 and LO 9-8014 (23 Mar 56) for the M38A1, you fill 'em to plug level. And that puts the oil level in the transmission about 1½ inches higher than in the transfer.

So far, you're holding a pat hand in the high-low game.

But—like it tells you in TM 9-8015-2 (2 Aug 54), if there's one around—the transmission and transfer on your rambling ricksha are connected by drilled passages so the oil can circulate from one to the other and back again.

Naturally, after a bit of travel with the vehicle, some of the oil from the higher pool in the transmission goes to the transfer and doesn't come back. First thing you know, oil levels in the two gear cases are the same.

That's when the inspector hits you . . . with too much oil in the transfer and not enough in the transmission.

Obviously the oil in both of these gear cases can't be kept exactly at filler plug levels when one's higher than the other. So, here's your practical way out:

Fill each gear case to its own plug level when adding new oil every 12,000 miles or annually.

Make your cold checks and maintain the oil level during regular maintenance services at the transmission plug **only.**

A little extra oil in the transfer is something you can learn to live with, 'cause the transfer can take it.

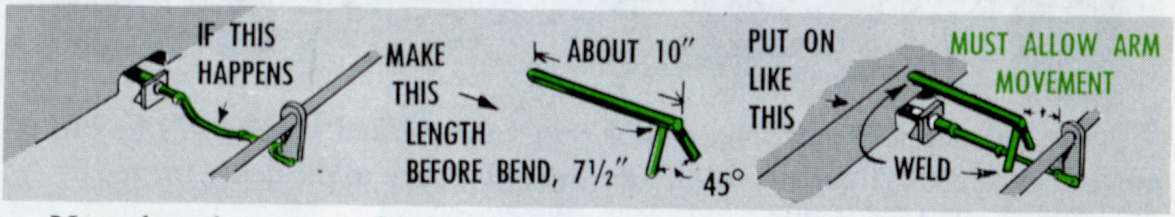
Watch that stompin'

You wanna do some stompin'? Do it at your favorite juke joint, but not in the engine compartment of the M53 155mm SP gun or the M55 8-in howitzer.

When you're working in the hull after the engine's pulled, step like on eggs, and don't put the weight of your brogans on the push-pull brake release control.

You step on that control where the solid rod slides into the tube, and it'll bend $18 worth—which is what you'll pay for a new one on a statement of charges.

Once it gets bent, you can't straighten it up again so it works right—look, ma, no brakes!



Now there is a way to fix this so even a lead-headed and lead-footed trainee mechanic can't stomp the life out of this control lever.

If your CO approves, you can weld a guard for the lever, like in the pictures.

Get some ½-in diameter steel rod—FSN 9510-596-2313—and cut it into two pieces, one 10 inches long and the other 7½ inches.

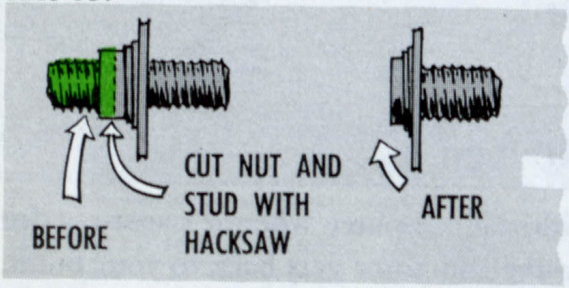
Make the welds like the figures show and you're in business.

Play it cool when you make these hot welds—have your fire extinguishers ready, and protect the area around the work with an asbestos blanket. If you are a safe soldier you'll never be a sorry soldier.

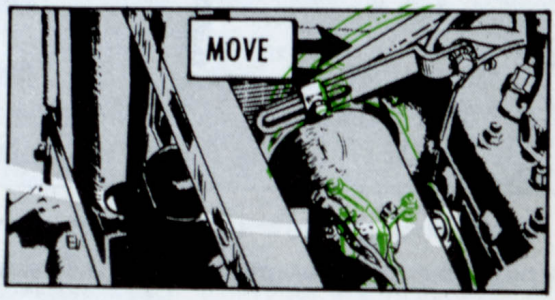
Knock it off

Here's a fix that'll take the sweat out of changing the fan belt on those Clark Planeloaders that have little freeplay for slipping the generator.

Take off the generator. Then take the upper center stud out of the generator mounting bracket and saw it off like so:



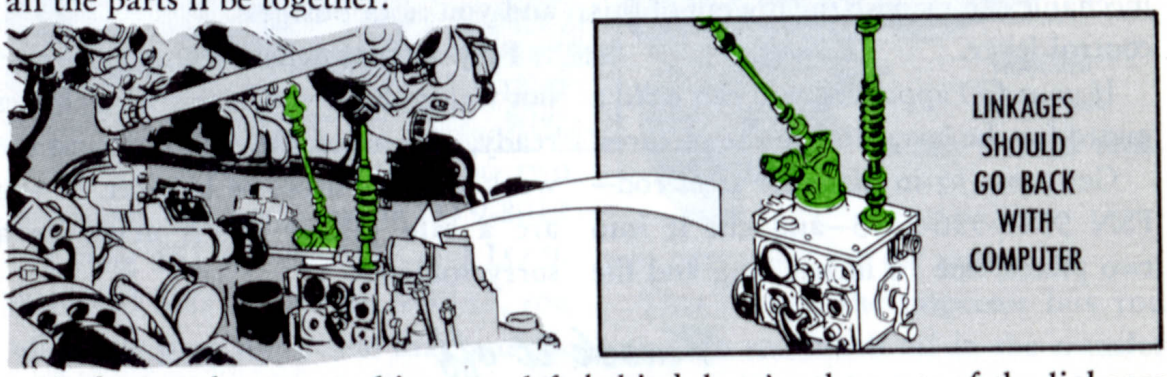
This'll let you move the generator closer to the engine block, which'll give the fan belt more slack. Now you won't have to worry about damaging the generator bearings and belt while fumbling with a screwdriver or wrench. The belt will go on and off easy.



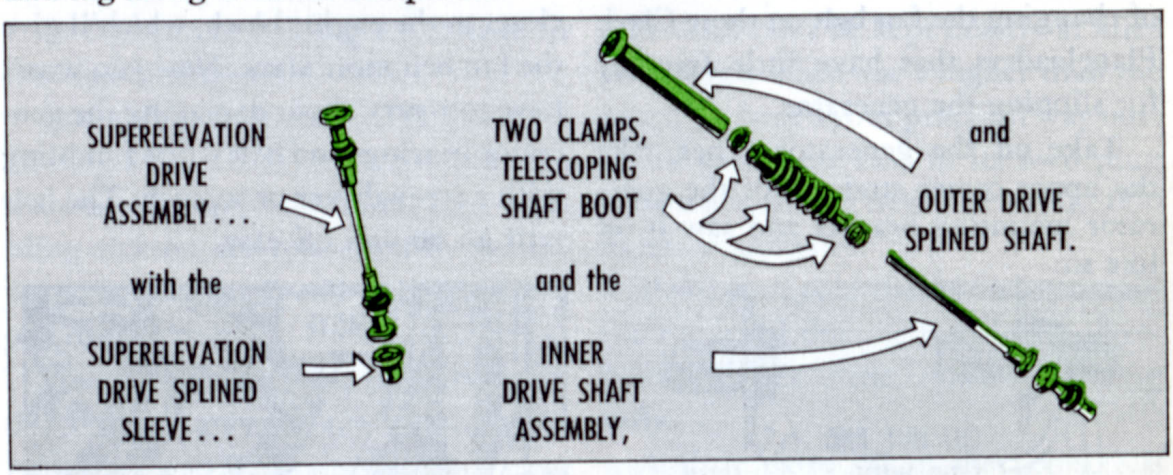
It all goes back

When the support unit man climbs into your tracked vehicle so's he can remove your M13(T31)ballistic computer to send it back to the depot for repair . . . pass this word along to him.

Tell him that the linkages also want to go back with the computer. That way all the parts'll be together.



And, to make sure nothing gets left behind, here're the parts of the linkages that tag along with the computer:



And, seeing's how the linkages go with the computer when it's sent out for repair, they also want to be with it when the computer gets back to your outfit.

A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjutant General's Distribution Center Bulletins.

TECHNICAL MANUALS

TM 1-1H-13D-4-20P Jan.
TM 1-1H-23-1015 Feb Foul Weather Protection—Tail Rotor Blades.
TM 1-1H-23-1017 Jan Install First Aid Kits & CF3Br Fire Ext.
TM 1-1H-23C-1 Dec 60.
TM 1-1H-23C-2 Dec.
TM 1-1H-23D-1023 Feb Ground Aircraft.
TM 1-1H-34-4-20P Feb.
TM 1-1H-37A-4-20P Feb.
TM 1-1H-37A-1076 Feb Install CF3Br Fire Ext.
TM 1-3HA4-2-1 Feb Op, Serv & Overhl Instr Const Spd Ctrl Gov Mod 1A2-A5 & 1A2-G5 U/W Ham Stan Ctwt-Type Prop (Woodward).
TM 1-1U-1A-1028 Feb Microphone Switch, Control Column, Wheel.
TM 5-2805-207-15 Feb Engine, Gas Chrysler Mod IND 908A.
TM 5-2805-211-12 Feb Engine Gasoline Continental Mod MS330.
TM 5-4120-214-15 Jan Air Conditioner, American Electronics Mod ASM 3466A.
TM 5-4210-200-20P Jan Truck, Fire Fighting Pumper; Foam, Water, 500 GPM.
TM 5-4310-220-10 Jan Compressor, Rotary: Joy Mod RPA 210GD3-MS-1.
TM 5-4310-237-15 Feb Compressor, Recip Johnson Mod 252-R.
TM 5-4310-237-25P Feb Compressor Reciprocating Johnson Mod 252-R.
TM 5-4320-200-15 Feb Pump, Centrifugal Barnes Mod 17570.
TM 5-4320-203-12 Feb Pump, Rotary, Peerless Hi-Lift Mod 52.
TM 5-4320-208-15 Jan Pump, Centrifugal: 125 GPM.
TM 5-4320-211-12 Jan Pump, Centrifugal: Kurz & Root Mod Baldy 1.
TM 5-6115-204-20P Dec Generator, John Reiner Mods GGC-10-AC-2&3.
TM 5-6115-213-20 Jan Generator, Kurz & Root Mod Alex 1.
TM 5-6115-256-25P Jan Generator Set Sommer Electric Mod SG-1500.
TM 5-6115-257-25P Jan Generator 1.5KW, AC, 120 V.
TM 5-6605-200-15 Jan Compass, Sun, Brunson Mod 7673B.
TM 5-8120-201-12 Feb Tank, Lox Cambridge Mod 217-30.
TM 9-1010-205-12 Feb 40-MM Grenade Launcher M79.
TM 9-1010-205-20P Feb 40-MM Grenade Launcher M79.
TM 9-1025-200-20P Feb 155-MM Towed Medium Howitzer.
TM 9-1030-201-20P Jan 280-MM Heavy Motorized Gun M65.
TM 9-1030-203-20P Jan 8-Inch Towed Heavy Howitzer.
TM 9-1430-250-20P/7 and /8 Jan Antenna-Receiver-Transmitter Group (Herc).
TM 9-1430-250-20P/9 and /10 Jan Central Director Station (Herc).
TM 9-1430-250-20P/12 Jan Central Detector, Radio Frequency RF-122/T (Herc).
TM 9-1430-250-20P/13 Jan Central Test Set, Radar AN-TSM-47 (Herc).
TM 9-1430-406-20P Dec LaCrosse.
TM 9-1450-500-20P Jan Hawk.
TM 9-2330-256-14 Jan Trailer; ¾-Ton, M116.
TM 9-2350-214-10 Dec Tank, Combat, 120-MM Gun, M103A1.
TM 9-6920-214-12 Feb 318-MM Little John Training Rocket Set X3-G-76.
TM 10-3930-223-10 Jan Rough Terrain Lift, 10,000 Pound MR-100; MHE 165.
TM 10-4540-201-15 Jan Heaters, Immersion, For Corrugated Cans and Tank Trailers.
TM 10-8415-201-15 Jan Helmet, Combat Vehicle Crewman's.
TM 11-2320-200-15P Feb Truck V-18A /MTQ.
TM 11-5805-245-20P Jan Power Supply PP-827/U.
TM 11-5805-248-20P Jan Power Supplies PP-826/U and PP-826A/U.
TM 11-5805-285-25P Jan Telegraph Telephone Terminal AN/MCC-6.
TM 11-5805-286-15 Jan Repeater, Telephone AN/MCC-3.
TM 11-5805-286-25P Jan Repeater Telephone AN/MCC-3.
TM 11-5805-302-10 Jan Repeater Telephone TA-287/G.
TM 11-5805-306-20P Feb Switchboards SB-66/FGC & SB-66A/FGC.
TM 11-5805-314-12 Jan Converters Tele Signal CV-780/GT & CV-884/GT.
TM 11-5805-316-12P Jan Relay Rack, Tele RE-165/G.
TM 11-5805-321-20P Feb Alarm Monitor Group AN/FGA-5.
TM 11-5805-322-12 Feb Manual Terminal Telegraph Telephone.
TM 11-5815-210-15 Jan Central Office, Teletypewriter AN/MGC-9.
TM 11-5815-267-20P Jan Teletypewriters TT-5/FG, TT-6/FG & TT-8/FG.
TM 11-5815-276-12P Jan Perforator Teletypewriter AN/FGQ-2.
TM 11-5815-277-12P Jan Teleprinter TT-262/FG.
TM 11-5820-287-20 Jan Radio Sets AN/GRC-24, AN/GRC-78 and AN/GRC-81: Radio Terminal Sets AN/GRC-35, AN/GRC-76, AN/GRC-79 and AN/GRC-82: Radio Relay Set AN/GRC-35.
TM 11-5820-358-10 Jan Radio Receiver R-390A/URR.
TM 11-5820-458-15P Feb Panoramic Indicator Kit for Radio Set AN/GLQ-2.
TM 11-5821-232-12P Jan Receiver, Radio R-509/ARC.
TM 11-5830-213-20P Feb Intercommunicating Station LS-125/FI, LS-125A/FI & LS-125B/FI.
TM 11-5895-204-10 Jan Sound Locating Set GR-6-A, Sound Ranging Set AN/TNS-3.
TM 11-5895-285-12P Jan Coder-Decoder Group OA-2926/FSQ-34.
TM 11-5965-224-12P Jan Handsets H-60/PT & H-165/U.
TM 11-5965-249-12P Jan Headset-Microphone H-63/U.
TM 11-5985-212-15 Dec Antenna Coupler CU-168/FRR.
TM 11-6115-224-15P Jan Generator Set, Gasoline Engine Trailer Mounted PU-409/M.
TM 11-6130-210-20 Feb Chargers, Battery PP-2102/U & PP-2103/U (Including Chargers, Battery PP-775/U & PP-775A/U).
TM 11-6130-210-20P Feb Charger, Battery PP-775/U.
TM 11-6625-236-15 Nov Range Calibrators TS-573/UP- TS-573A/UP & TS-573B/UP.
TM 11-6625-238-20P Jan Oscilloscope AN/USM-89.
TM 11-6625-239-12 Dec 60 Electronic Multimeters TS-505A/U and TS-505B/U, TS-505C/U and TS-505D/U.
TM 11-6625-348-25P Jan Power Supply PP-1243/U.
TM 11-6625-390-20P Jan Telephone Test Set TS-712/TCC-11.
TM 11-6625-395-12P Feb Standing Wave Ratio Power Meter ME-171/U.
TM 11-6740-239-20P Jan Timer, Contrast, Variable FM-139A.
TM 11-7450-200-10 Jan Recorder-Reproducer Set, Sound AN/TNH 8.
TM 11-7450-200-20 Jan Recorder-Reproducer Set, Sound AN/TNH 8.
TM 55-2210-207-20P Jan Loco, Dsl Elec, 56½ In Gage, 65 Ton, 0-4-4-0 Wheel Cummins Eng Mod HBIS600, 400 HP, GE.

LUBRICATION ORDER

LO 5-4320-203-12 Jan Pump, Rotary, Peerless Hi-Lift Mod 52.
LO 5-4320-218-15 Jan Pump, Centrifugal: Gorman-Rupp Mod 04A12-MVG4d.
LO 5-6115-233-20 Feb Generator Set, Kurz & Root Mod Cleo-1.
LO 5-6115-269-20 Jan Generator Set, 10KW, AC, 120V, Hol-GAR Mod CE106-AC/WK9.
LO 55-1940-204-12/1 Jan Fire and Salvage Pump Diesel Eng Driven Herc Eng Mod DOOD Carter Pump Mod 704-5.
LO 55-2815-210-12 Jan Eng, Diesel, Marine (Buda Mod 6DCSMR1879).

MODIFICATION WORK ORDER

MWO 9-1430-250-20/2/1 Feb Adding Antenna Segment Covers (Herc).
MWO 9-5012-1/20/1 Feb Color Coding the Fuel and Acid Aspirators (Ajax).
MWO 55-1520-204-20/2 Jan Inspection of Tail Rotor Drive Shaft Lock Nuts (47-644-035-1), H-13 Aircraft.
MWO ORD J-753-2-W26 Feb Adapter & Cables for Sequential Timer Tests (Herc).
MWO ORD Y4-2-W15 & Y4-3-W12 Feb Bus Bars & Terminal Boards & Wiring Changes (Ajax).
MWO ORD Y51-W41 Feb Replacing Fuze in Computer Control C-1425/MSA-6 (Corporal II).

SUPPLY BULLETIN

SB 1-15-9 Feb A/C Mod Kits.
SB 3-30-73 Feb Maint and Repair Set, Chem Equip, M1A1 Serv Standard.
SB 5-84 Mar COE Blue Streak Requisitions.
SB 10-509 Dec Quartermaster Corps Adopted Items of Materiel.
SB 11-512 Feb Radio Transmitting and Receiving Sets at Class A, B, and C Army Airfields.

SUPPLY MANUALS

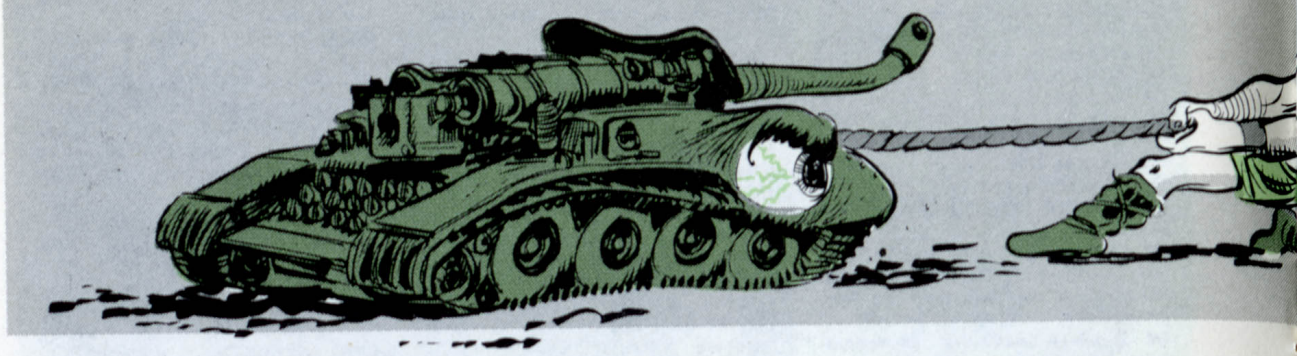
SM 5-4-2090-504 Feb Repair Eqpt, Boat and Pontoon.
SM 5-4-5420-509 Feb Bridge Erection Set.
SM 5-4-6675-563 Feb Surveying Set.
SM 5-4-7610-514 Feb Book Set: Forestry.
SM 9-4-1450-MO2, Jan Guided Missile Fuel Kit (Corporal II).

MISCELLANEOUS

DA Form 9-178 Jan Radar Set AN/MPQ-33, Check Sheet, (Hawk) Air Defense Guided Missile System.
DA Form 9-191 Central Check Procedures (Hawk).
TB 9-2300-233-20 Jan Truck, Utility: 1¼-Ton, M38, M38A1, M38A1C, M170 Generator Belt Tension Brace.
TB QM 144 Feb Gas-Fired Cooking Equipment.
TB SIG 296, Feb Headset H-32/U.
TC 1-15 Feb Trans Tr AC-1 A/C. Battery PP.

HERE'S THE LATEST...
ON EXERCISING THE SPAT'S...

RECOIL



The latest word from the people in the recoil business says it's best to move the large piston of the SPAT's recoil mechanism every two months—if, that is—the gun's not been fired.

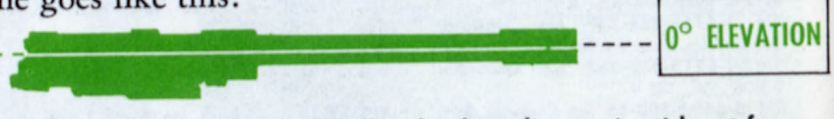
And the job can be done safely with nothing more'n your elbow-grease and the hand pump.

So on your copy of PS 89, page 12, cross out the item on exercising the SPAT and make a note there to remind yourself of this new way of doing this mighty important chore.

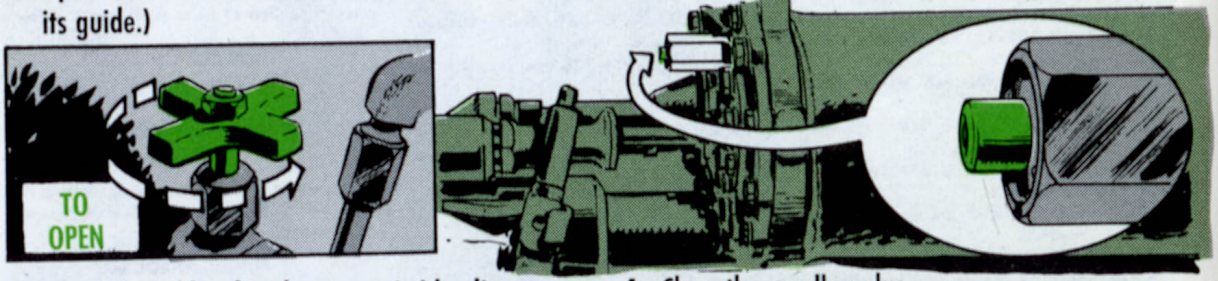
You'll be moving only the large piston in the weapon's hydro-spring recoil mechanism, but every six months (if the gun's not been fired) the mechanism will be given an exercise by your Ordnance support unit which will move both the small and the large pistons, plus throw in a checkup for a good measure.

Your bi-monthly routine goes like this:

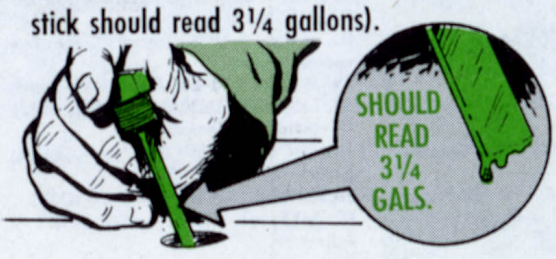
1. Leave gun at zero elevation.



2. Open the needle valve to release the charging pressure. (This'll make the indicator pin stick out from its guide.)



3. Check the oil level in the reservoir (the dip-stick should read 3¼ gallons).



4. Close the needle valve.

HERE'S THE LATEST...
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RECOIL MECHANISM

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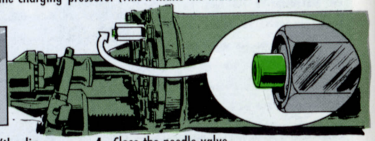
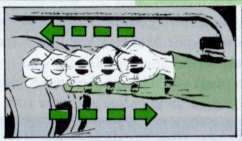
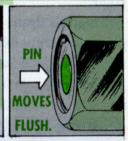


3. Check the oil level in the reservoir (the dipstick should read 3¼ gallons).

4. Close the needle valve.

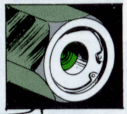
5. Now start pumping to build up charging pressure. Keep the pump going until the indicator pin is flush with its guide. It'll normally take about 45 strokes to get the pin flush.



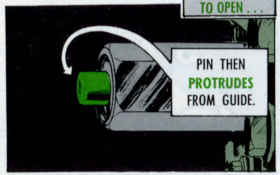


ABOUT 45 STROKES...

6. Take a deep breath, moisten your palms, and give the pump 250 more strokes. With this last burst of pumping you'll budge the large piston something like 1¾ inches—and the movement will give the recoil mechanism innards the film of oil they need. Now the indicator pin's receded into its guide.



7. Open the needle valve again. As the large piston settles back to its un-charged position the indicator pin'll again protrude from its guide.



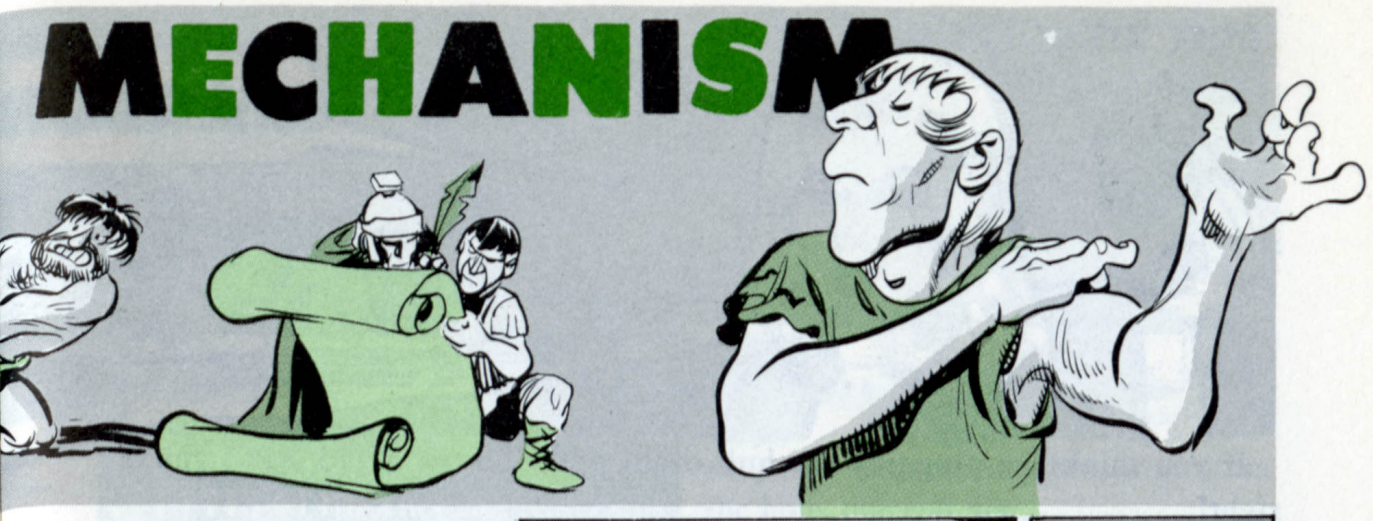
8. Take another deep breath—then do steps 3, 4, 5, 6 and 7 two more times.

SEMPER FIDELIS
PUMPUS ETERNALIS

9. Your last step, of course, is to leave the SPAT with normal operating pressure . . . so, close the valve and use the hand pump until the indicator pin sets flush in the guide once again.

10. Record your exercising chores, and you're done.

MECHANISM



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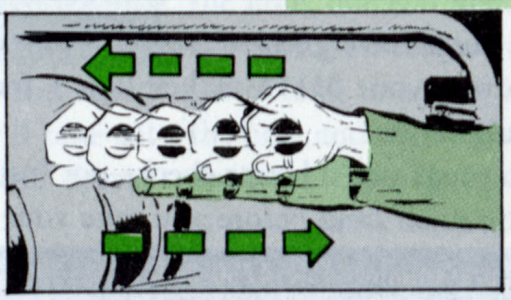

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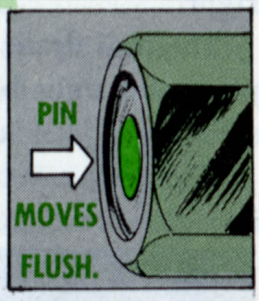

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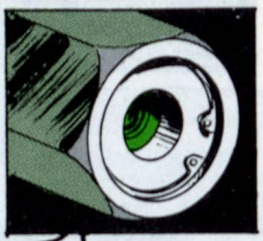

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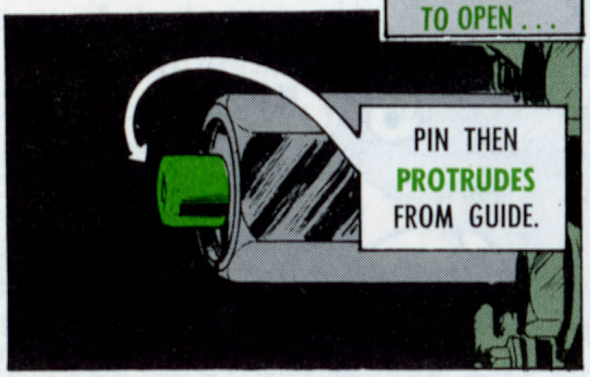

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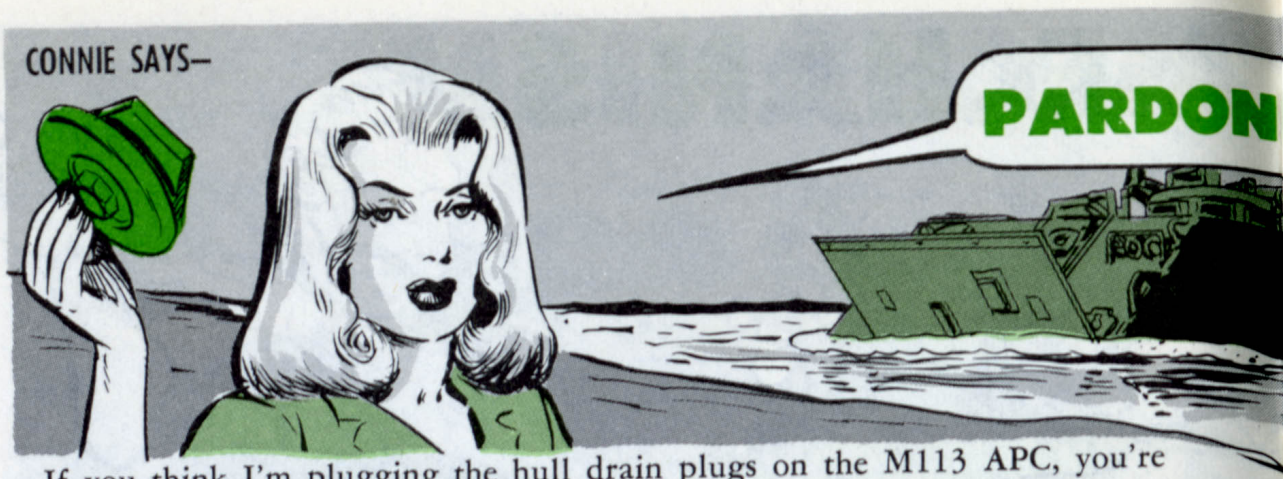
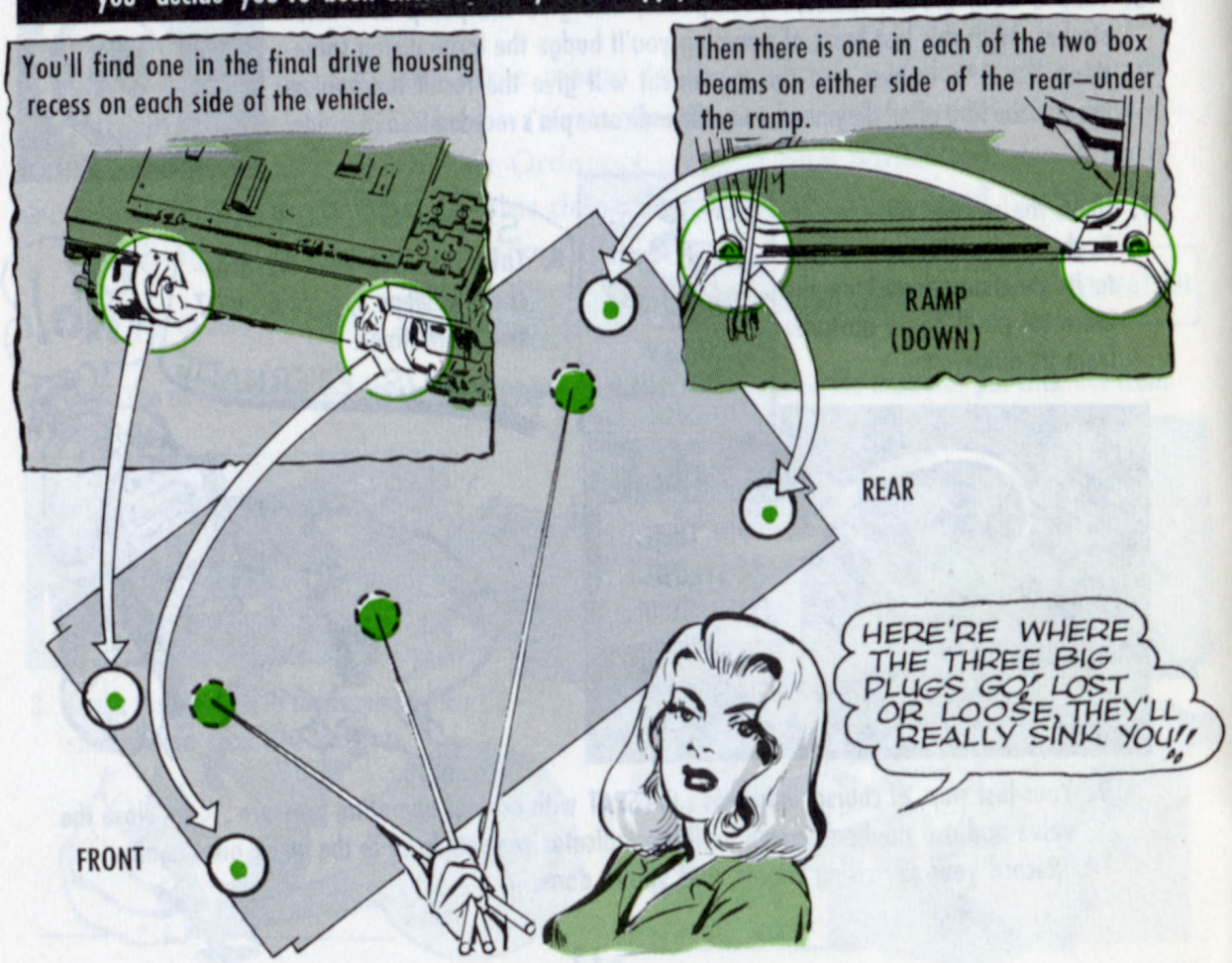


If you think I'm plugging the hull drain plugs on the M113 APC, you're right!

The hull drain plugs have gotta—repeat . . . gotta—repeat . . . gotta . . . be in place and tight before your M113 makes like a ferry boat. Otherwise, it can sink like a lead submarine.

There are seven plugs you'd better check—not just for being in, but for being in **right**—while you're on land before you take your M113 into the drink.

Four of them are smaller—FSN 4730-805-3963. These are usually removed during shipment, so check 'em right now. Look through your OVE real careful-like, before you decide you've been shorted and yell to supply for new ones.



CONNIE SAYS—

PARDON THIS PLUG

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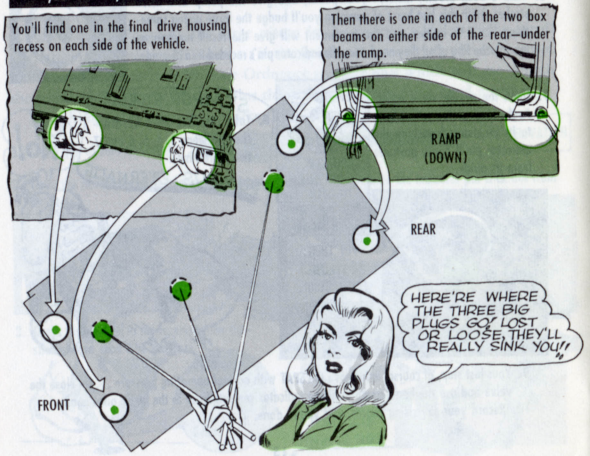
There are seven plugs you'd better check—not just for being in, but for being in **right**—while you're on land before you take your M113 into the drink.

Four of them are smaller—FSN 4730-805-3963. These are usually removed during shipment, so check 'em right now. Look through your OVE real careful-like, before you decide you've been shorted and yell to supply for new ones.



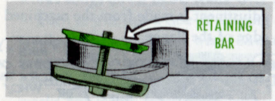
The other three are big ones—FSN 2510-713-6140. They can really sink you fast.

Take a hammer with you and crawl under the hull. 'Course you'll take all safety precautions, motor off, tracks blocked, and all like that.

To be sure you're OK on these big ones, take a ball-peen hammer and tap **—lightly—**on the lock nut and the flange of the cover. It should be tight and well centered in the opening.

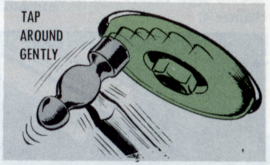
The hull drain plugs are pretty useful. The front plug lets you get at the differential drain. The center one, which is easy to spot because it is close to the big hull access cover plate, is removed when you want to drain the transfer case. You use the right, rear, plug to drain the bilge.

These hull drain plugs all work alike. To take one out you loosen the



hex-headed cap screw—one of the TM's also calls it a lock nut. This screw goes into an oblong retaining bar, or catch. Loosen the screw and cover and slide it sideways until the assembly is free to drop out. The retaining bar comes outta the hole, one end first.

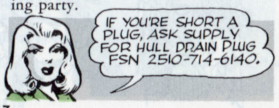
When you replace the plugs be sure the oblong retaining bar is centered in the hole and then tighten the cap screw until the cover is sealed tight. Tap it around gently with a hammer to get it in the right place and to make sure it's seated right. Also make sure one end of

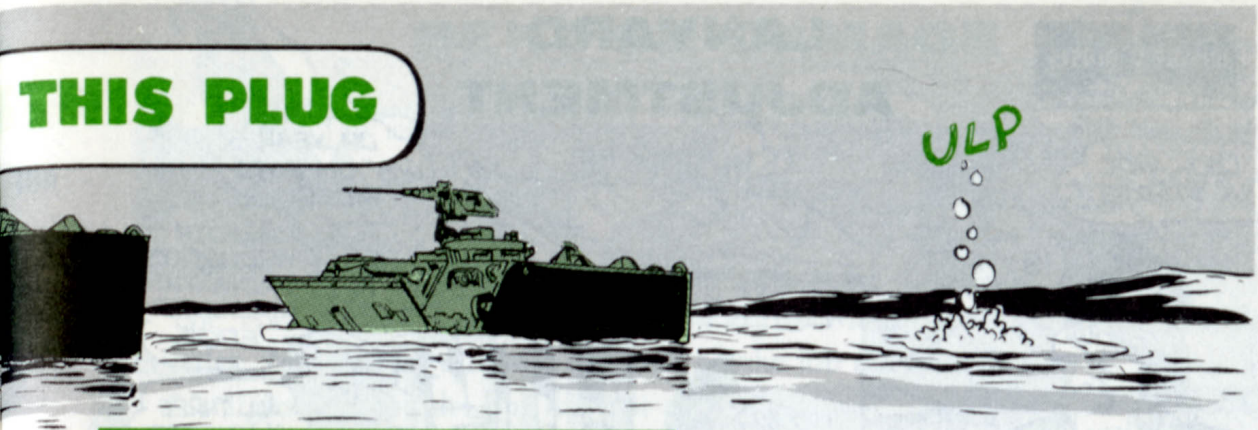


the retaining bar rests against the lug at the edge of the hole.

When your M113's in operation there's a good bit of flexing and vibration. If the retaining bar is the least bit off-center, it could loosen up and let the whole assembly drop off.

And that's a mighty big hole left open to let the river in. You could sink if the plug's off when you have a fording party.





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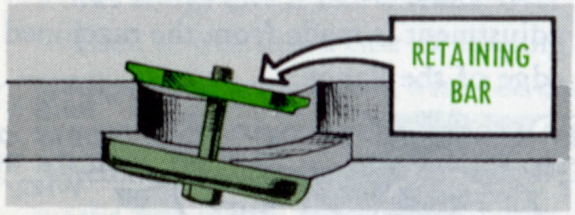

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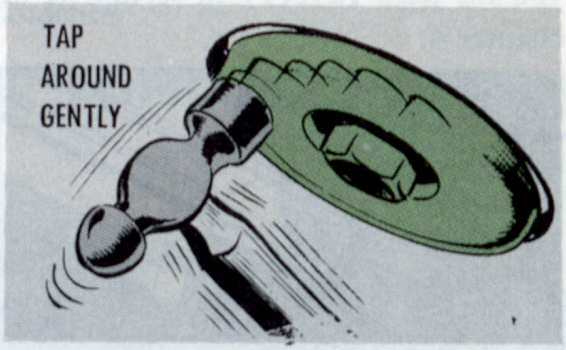

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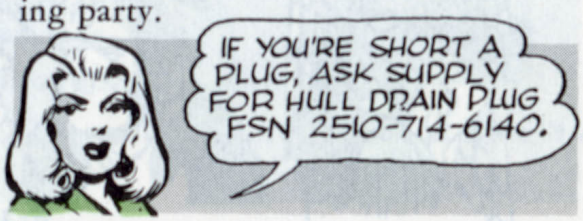
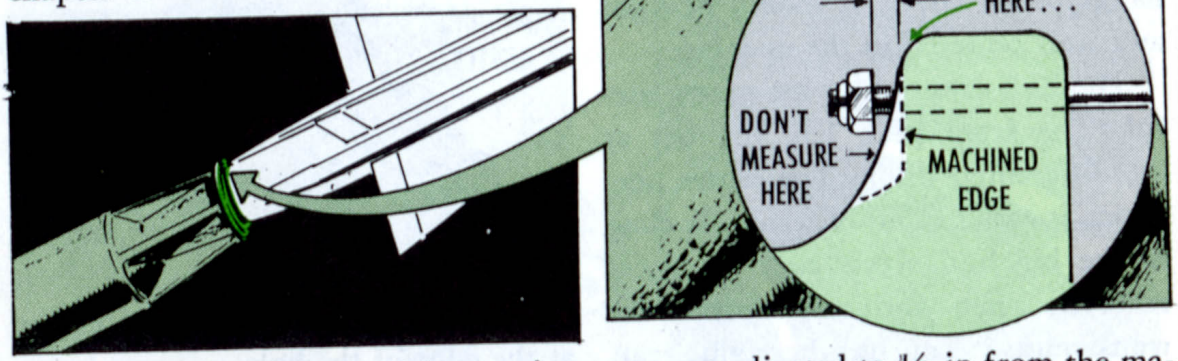


MISSILE BLASTS

LANYARD ADJUSTMENT

So you're sitting in the assembly building at your Nike site. And you're leafing through TM 9-5016-2 when you hit para 125c(1) in section II of chapter 4.



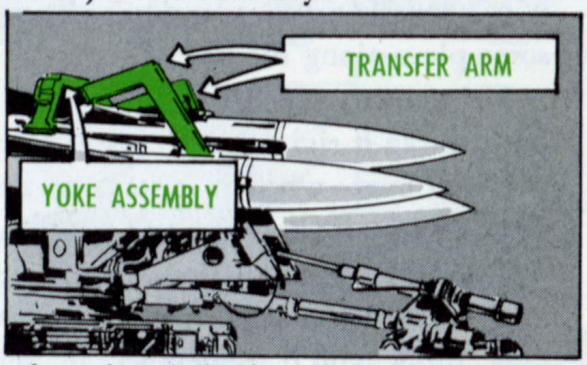
You read that the propulsion arming lanyard on your Ajax missile gets adjusted for ⅛-in play on both sides of the flange on the booster thrust ring assembly. And that sets you to wondering . . . does the rear self-locking hex nut get adjusted to ⅛-in from the machined edge of the flange or from the normal curve of the flange?

The answer in a nutshell is that the adjustment is made from the machined edge of the flange.

BENT ON DAMAGE

The Hawk loader can run back and forth all day—loading and unloading missiles. And it'll be all set to go back on the job the next day.

It's light and tough—but it's just so strong. So . . . if you drop some missiles on the launcher and then forget to release them, the loader's not going to raise the missiles and launcher off the ground as you go to raise the superstructure before backing off. Not on your life.



What'll happen (and it has more'n a few times) is that the superstructure components—like the yoke assembly, transfer arm, etc—will bend from the strain.

So—release 'em once they're on the launcher.

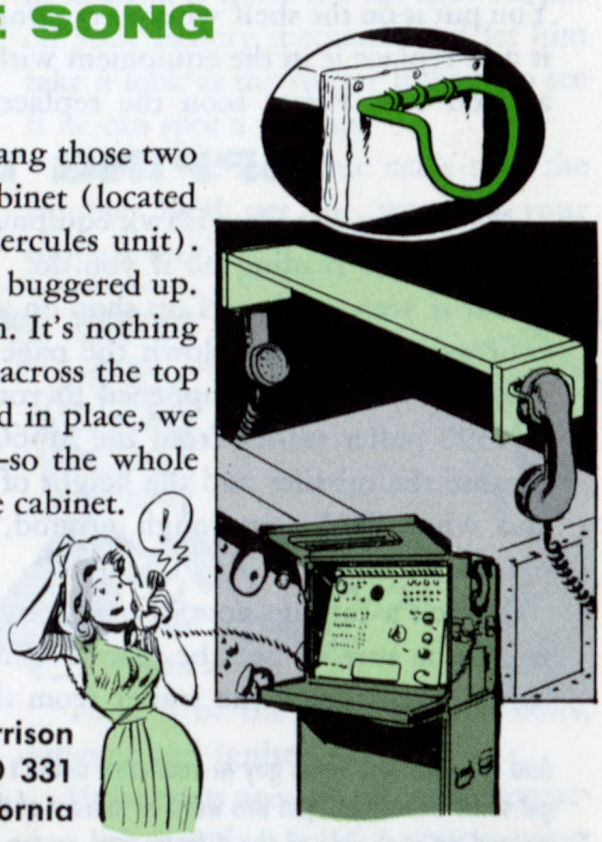
CRADLE SONG

Dear Editor,

For a long time we had no place to hang those two handsets used at the control indicator cabinet (located in the launching section of our Nike-Hercules unit). They get kicked, banged, and sometimes buggered up.

So we fixed up a cozy cradle for them. It's nothing more than a thin board cut to lie right across the top of the control cabinet. To hold the board in place, we hammered a short block at either end—so the whole works snugs down like a frame over the cabinet.

Then it was just a case of shaping a cradle out of some heavy wire (or coat hanger if you have some handy) and fastening the cradle to the wood. It works fine for us.



S.P.4 J. R. Harrison
APO 331
San Francisco, California

(Ed note—A real rock-a-bye solution. That cradle can also be used at Nike-Ajax installations.)

DOING A SPARE JOB

When making your maintenance checks on replacement chassis at your missile site, it's a good idea to keep your wits about you so's you don't slip up some place along the line.

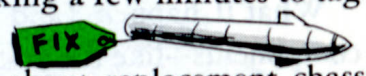
F'rinstance . . . when a part shows up bad, tag it right then to peg it for a working over—whether it stays on site or goes to your support unit.

Whatever you do, don't let it get back on to the shelf it came from. You may think you'll remember it, but there's a good chance it'll be forgotten.

Let's say a chassis gives you a hard time and you can't spot the trouble. You put it on the shelf without tagging it and replace it in the equipment with a good one. Pretty soon the replacement develops the same kind of trouble, so you call on your support unit for help. They decide to replace the chassis . . . reach up on the shelf . . . grab the bum one you put there . . . and put it in the equipment.

Naturally the same trouble stares the guy in the face. And maybe he's talking to himself because of all the time he's wasted—for no good reason.

It's easy to see that you can't go wrong in taking a few minutes to tag a bad chassis.



Speaking about replacement chassis . . . when one reaches your outfit by way of your support unit, check it out. If it doesn't come up to snuff, turn it back and ask for a good one.

TIPPING TRAILER TIP

Maybe you run your Hawk equipment around on velvet-smooth roads all the time. No use reading on if you do.

But if your outfit sets up shop on all kinds of ground, then you want to keep your eyeballs moving down the page.

Probably it hasn't happened to you . . . but when some guys disconnect the XM390 pallet trailer from the M36C truck, the trailer tips backwards. That's because the missiles and the height of the pallet make the trailer top heavy . . . and when you're on rough ground, the trailer has a tough time keeping its balance.

There's a caution note in paragraph 26e (5) of TM 9-2330-235-14 that tells you to be sure to put the rear leveling support jacks in the support position before you unhook the trailer from the towing vehicle.

And to make sure some guy in your crew doesn't forget, get some stencils and put this warning in front of the lifting rod on each side of the A-frame and on top of the A-frame members:

CAUTION: PUT REAR JACKS IN PLACE BEFORE DISCONNECTING LUNETTE FROM PRIME MOVER.

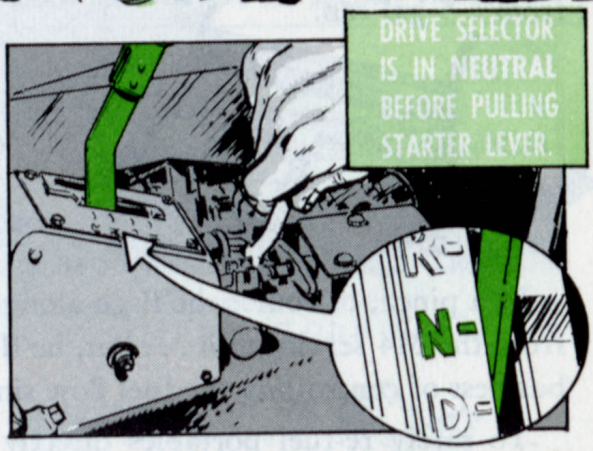
GET YOUR KICKS —ELSEWHERE

OK . . . so you look in your TM and right smack in front of you—in words and pictures—it says you start your Hawk loader by putting the shift in neutral and then pulling on the starting lever.

If the lever doesn't want to come back, don't—and double don't—get in front of the lever and give it a push with your foot.

The lever is not moving for a good reason—and shoving it with your foot's not going to do anything except make things worse.

Uh-Uh . . . when the lever won't move, see if you forgot to put the shift



in neutral. If that's not the answer, call on your battery mechanic and let him take a look at the starter linkage to see if he can spot a jam up.

And if the mechanic can't spot the trouble, he'll get the word to your support unit.

Don't touch . . . leave well enough alone . . . you name it. There're a number of parts to the Nike-Hercules XM30 rocket motor that you don't want to fiddle around with.

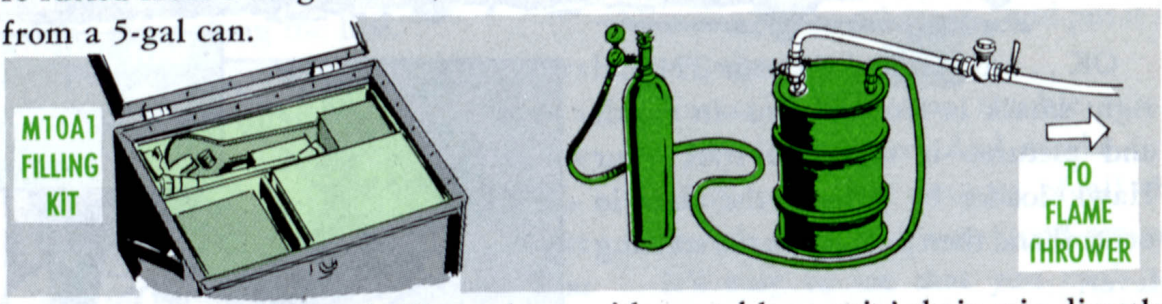
Those'd be the ring, gaskets, bolts, adapter and igniter.

If the parts need repairing or replacing, it's strictly a job for your support people.

PORTABLE FLAME THROWERS . . .

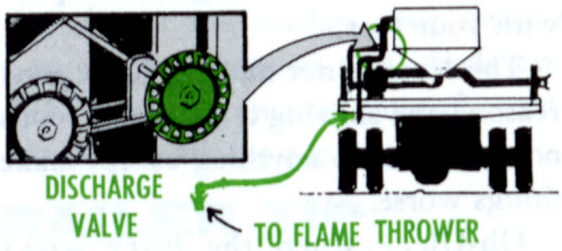
FUEL FEEDIN' FACTS

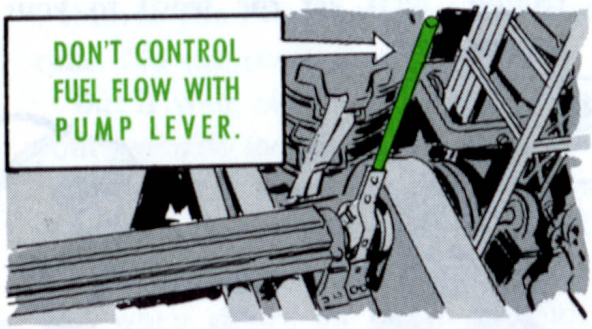
Any ole' hand with flame throwers will tell you that the portables are best re-fueled from a 55-gal drum, with the aid of the M10A1 filling kit . . . or, even from a 5-gal can.



In a pinch, of course, he'll go along with portables gettin' their mix directly from the M4 service unit . . . but, he'll quickly warn you about the dangerous business of controlling the fuel flow simply by working the pump lever.

To safely re-fuel portables directly from a powerful M4 you have to control the fuel flow by partially closing the mixing-tank discharge-valve like it says in para 36g TM 3-1040-205-12 "M4 Service Unit."

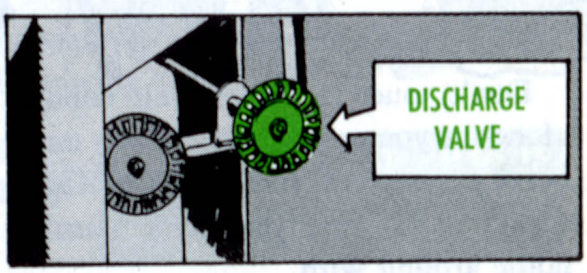




Doing it the wrong way—trying to control it with the pump lever—will damage both the pump and the agitator clutch. It's the quick stop-and-go jerks (as you goose the pump lever to deliver the short squirts it takes to fill a portable's small tanks) which bring on the costly damages.

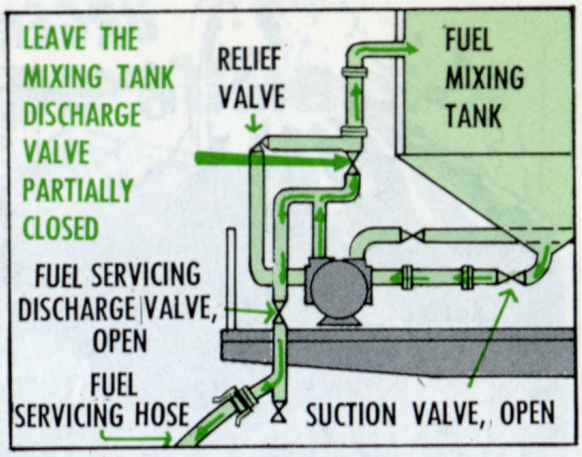
THE RIGHT WAY

TM 3-1040-205-12 says to gradually close the mixing-tank discharge-valve until you've tamed the flow down to the pressure you need to safely fill a portable's small tanks.



With the valve partially closed the excess fuel being pumped is by-passed and re-circulated into the mixing tank. This arrangement is what eliminates the danger of high pressure on your ¾-in fuel filling hose to the portable.

The TM also warns you against completely closing the mixing-tank discharge-valve . . . this can create excess force and foaming in the fuel flow to the portable.



TWO RULES

Actually, it boils down to this . . . you've got two simple rules to remember:

I. Direct hook-up with the M4 is best left to the mechanized flame throwers.

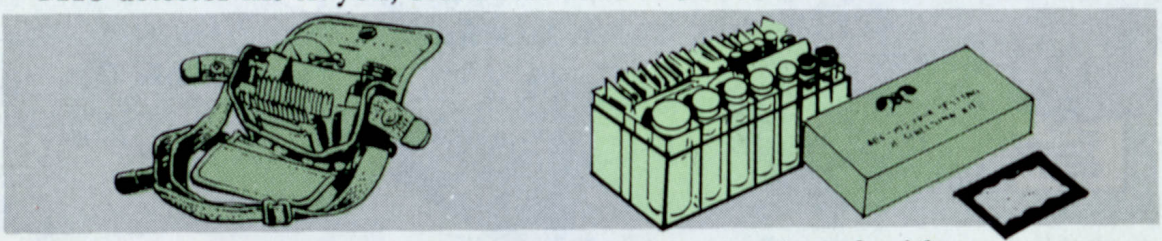
II. The best guides to re-fueling portables is the flame thrower's own TM and TM 3-411, which gives you the scoop on the M10A1 fuel filling kit (on pages 13 and 14).

CRAYONS, ANYONE...?

Did you get an M18 chemical agent detector kit, or an ABC M3 food testing and screening kit **minus** their crayons?

If so, now's the time to ask for 'em. You can get them through your normal technical service supply channels. Ask for:

M18 detector kit crayon, Stock No. 6665-A-910634.



ABC M-3 food testing kit crayon, Stock No. 6665-A-910679. When you ask for these crayons, be sure to quote the **requisition number** (or identification) of the **requisition** which brought in the kits without the crayons.

And, incidentally, don't be disturbed if the above stock numbers look a bit odd to you . . . they're legit. They cover the crayons specially packaged for kits which were issued without crayons.

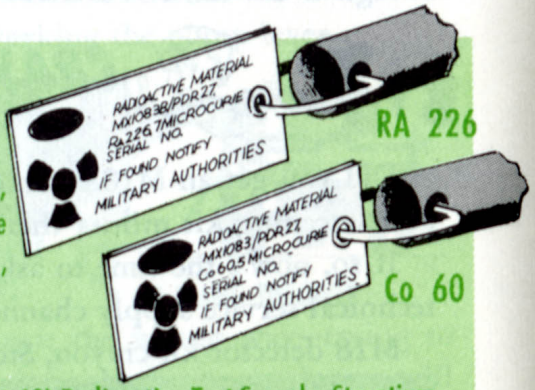
If you need the M7A1 vesicant detector crayon you can get a tin of three with this stock number: FSN 6665-112-9405 (Chemical).

M7A1

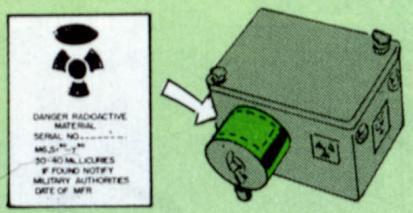
All keepers of radioactive test samples had best check into this trio of urgent Chemical Corps MWO's right away.

They have to do with proper identification (dog-tagging) of test samples in the field with special tags and decals. You get the tags and decals at: Headquarters, U. S. Army Chemical Center and Chemical Corps Materiel Command, Army Chemical Center, Maryland . . . via mail.

The modifications affect these test samples:



1. MWO CML 31 (5 Oct 60) Radioactive Test Sample, Cobalt 60, Gamma, MX-1083 (FSN 6665-330-9519, CML) and Radioactive Test Sample Radium 226, MX-1083B (FSN 6665-171-4317, CML).



2. MWO CML 32 (26 Sept 60) Radioactive Test Sample, Strontium-90— Yttrium 90, Beta, M6 (FSN 6665-508-0594, CML). Component of Radiac Calibrator, TS-784/UD (FSN 6665-692-6601, SIG).

3. MWO CML 33. (28 Sept 60) Radioactive Test Sample, Cobalt, 60, Gamma, M1 (FSN 6665-030-0327, CML).

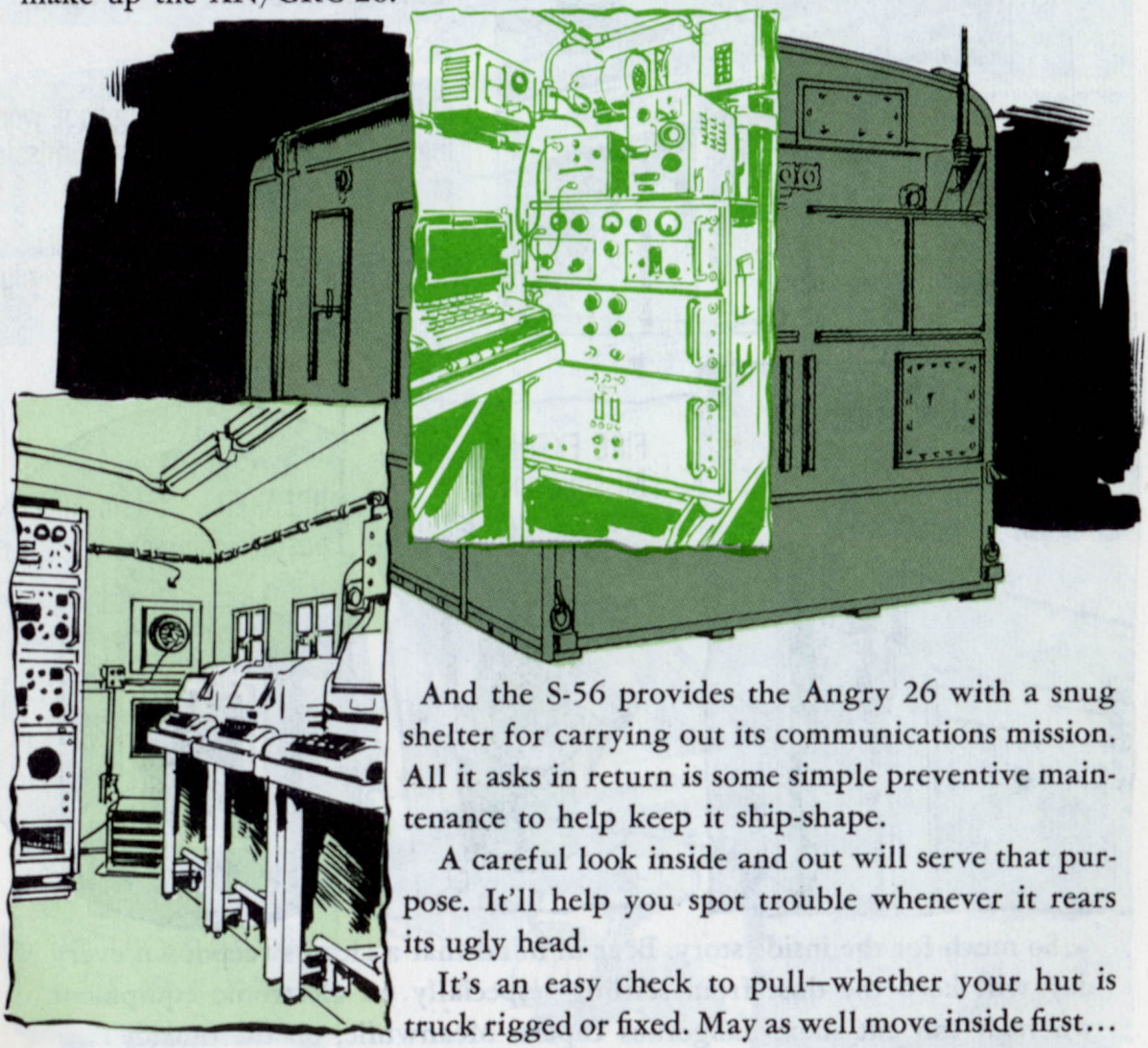
There's also an urgent MWO CML 30 (27 Sept 60) for Radioactive Test Sample, Cobalt 60, Gamma, MX-1173/UD, but this one will be taken care of by field or depot maintenance. If you keep this test sample on hand give your field maintenance outfit a call about it.

YOUR S-56A/G SHELTER...

BE IT EVER SO HUMBLE

Not fancy. Not roomy. Not even too comfortable, sometimes.

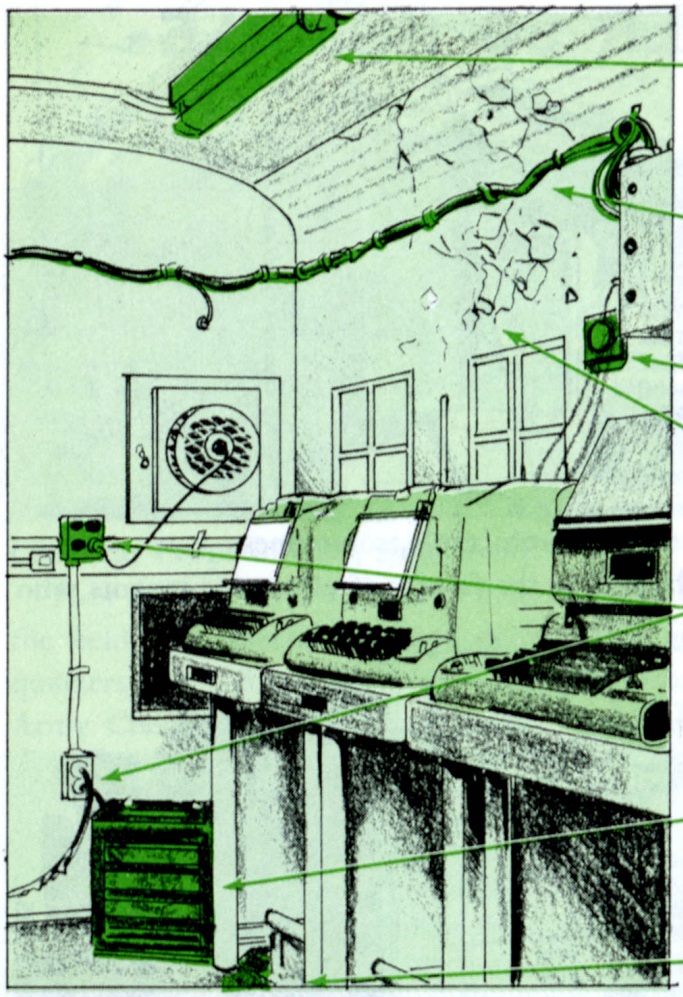
But your S-56A/G Shelter is "home" to the family of electronic tenants who make up the AN/GRC-26.



And the S-56 provides the Angry 26 with a snug shelter for carrying out its communications mission. All it asks in return is some simple preventive maintenance to help keep it ship-shape.

A careful look inside and out will serve that purpose. It'll help you spot trouble whenever it rears its ugly head.

It's an easy check to pull—whether your hut is truck rigged or fixed. May as well move inside first...



FLUORESCENT LIGHTS—
Fail to light; loose; tubes missing.

INTERNAL WIRING—Insulation frayed; clamps loose; wire damaged.

CLOCK—Not working; runs fast or slow.

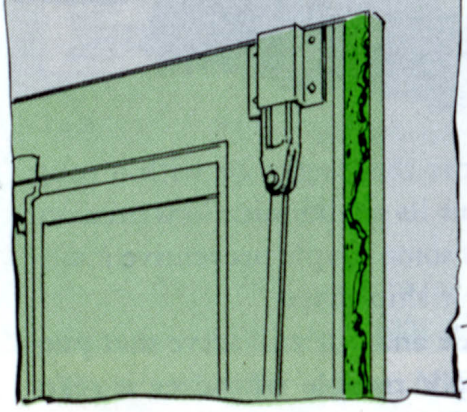
PAINT—Cracked; flaking.

ELECTRICAL OUTLETS—
Loose; plugs unable to seat right.

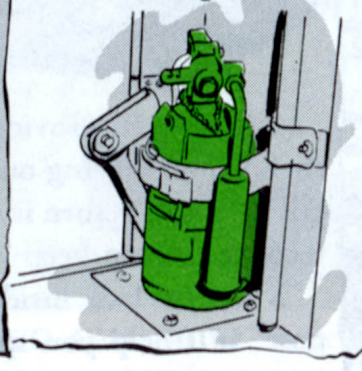
ELECTRIC HEATER—Missing; not working; hold-down Dzus fasteners missing or loose.

HOUSEKEEPING—Dust collected; clutter; disarranged.

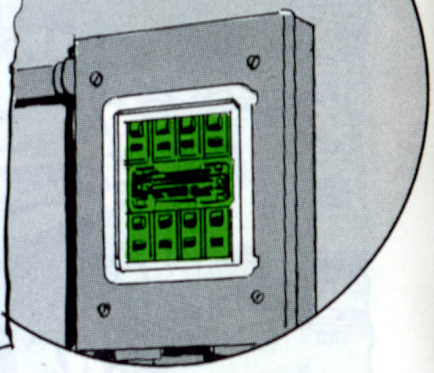
WEATHERSTRIPPING FOR DOOR—Frayed; mildewed; torn; strips missing.



FIRE EXTINGUISHER—
Missing; loose; overdue for weighing or re-filling.

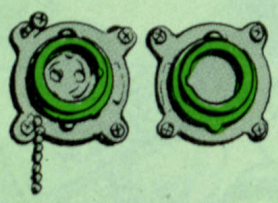


CIRCUIT BREAKERS—Not making positive contact.



So much for the inside story. Bear in mind that a clean sweepdown every day will keep the dust from settling—especially on electronic equipment where it can cut some dangerous capers. Meanwhile, on the outside . . .

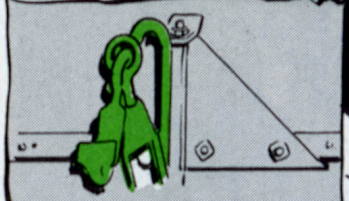
FEED-THROUGH RECEPTACLES—Gaskets worn out, cracked, loose; bolts loose; metal cap loose, missing.



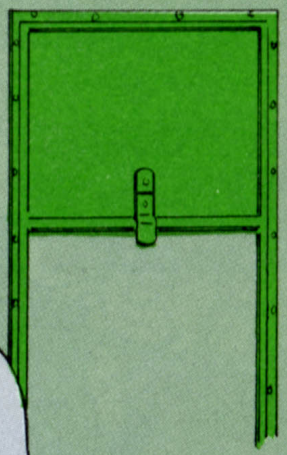
EXTERNAL GROUND CONNECTOR—Bent; broken; corroded.

SCREENS—Bent; broken; loose.

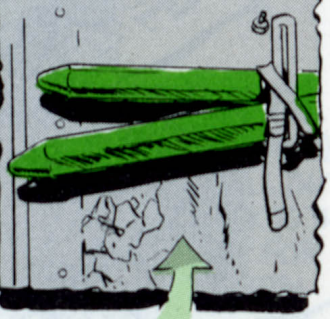
HOLD-DOWN ASSEMBLIES—Bent; loose.



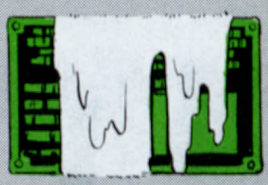
WINDOW SHUTTERS and ROOF HATCH—Stuck; loose; won't move smoothly on runners.



LANCE POLES—Missing; loose.



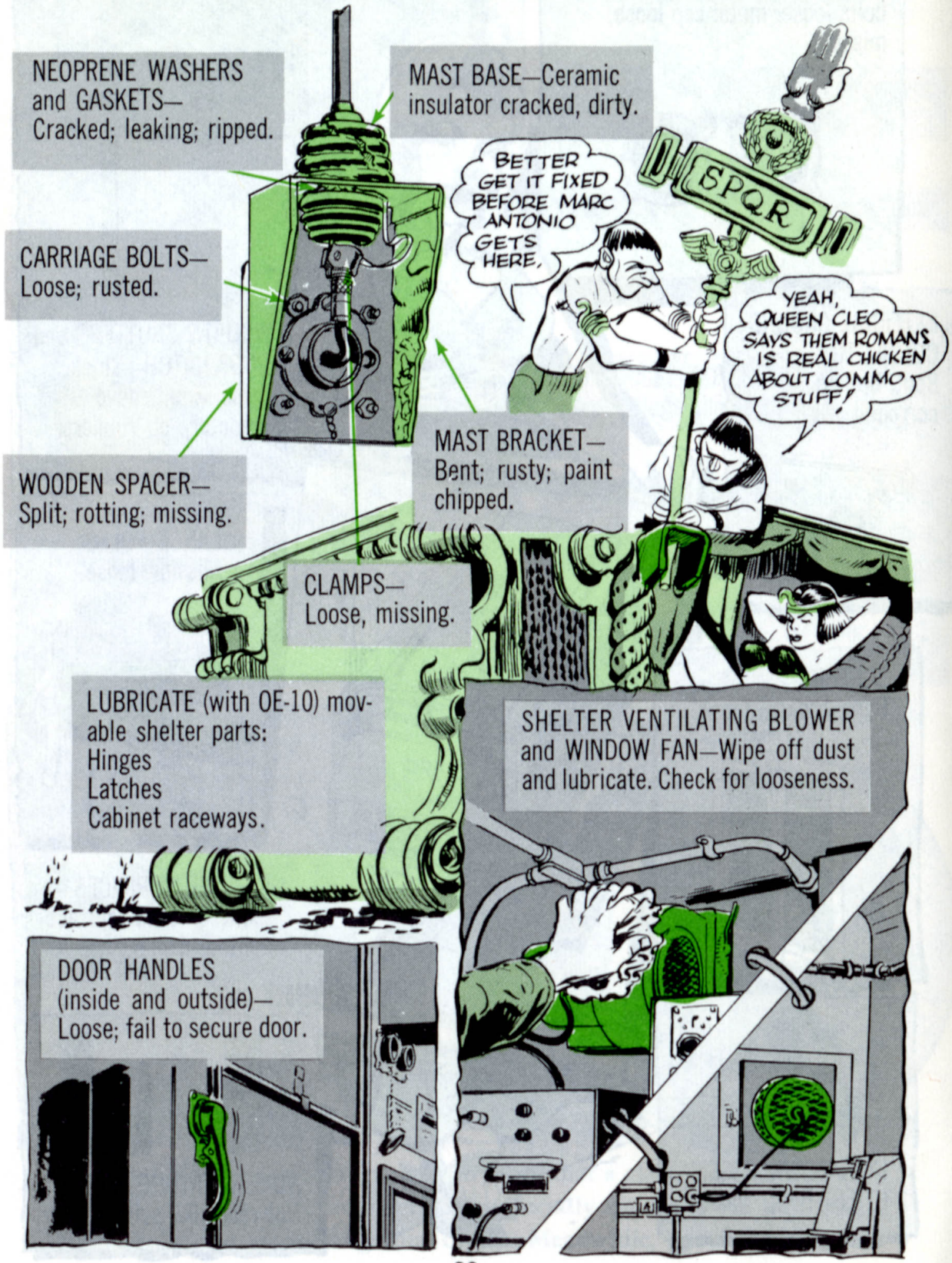
SHELTER SURFACES—Paint cracked; surface dented, damaged.

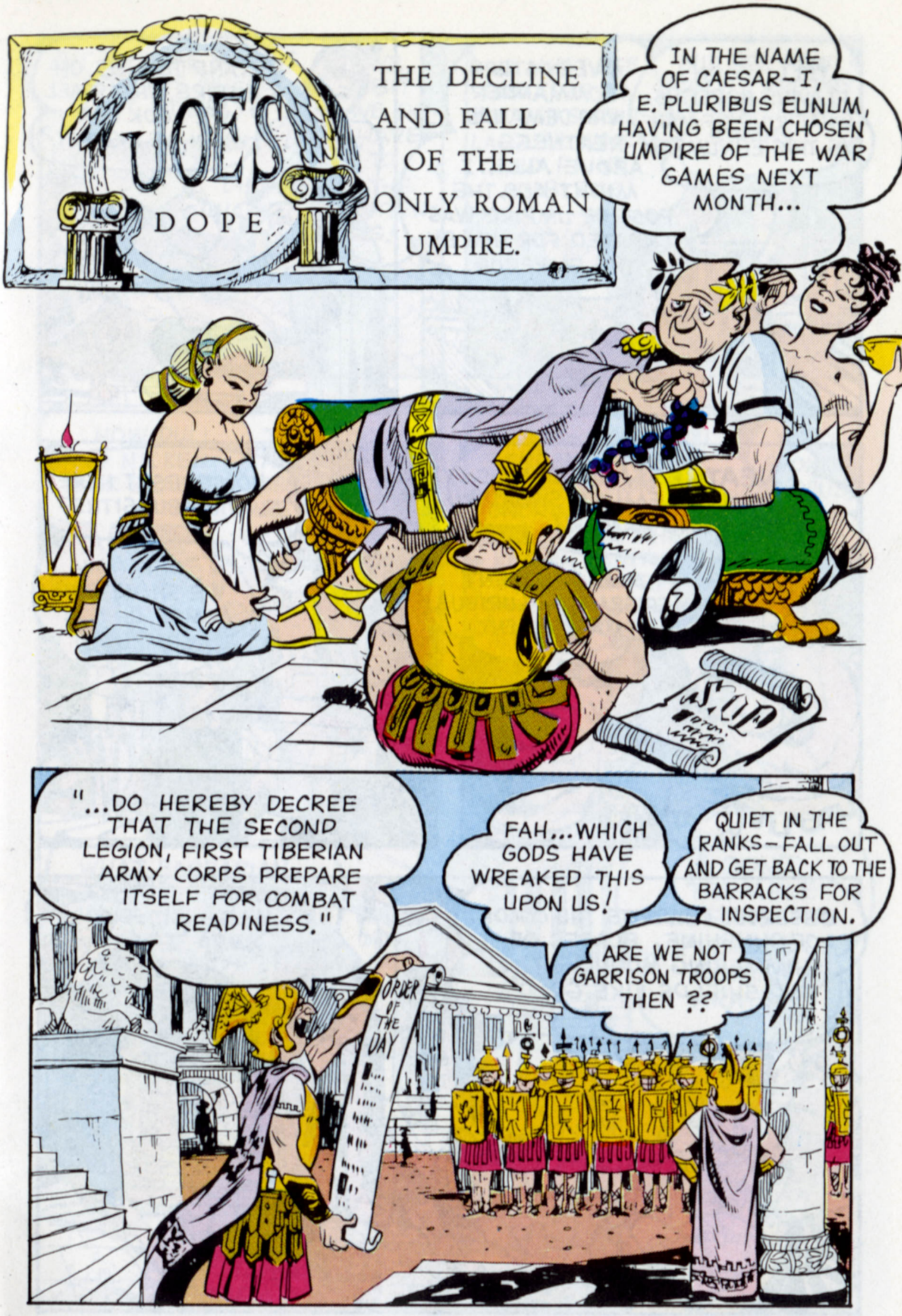


NOMENCLATURE PLATES—Not readable; painted over.

Mast Bracket MP-50-A, Mast Base MP-65-B

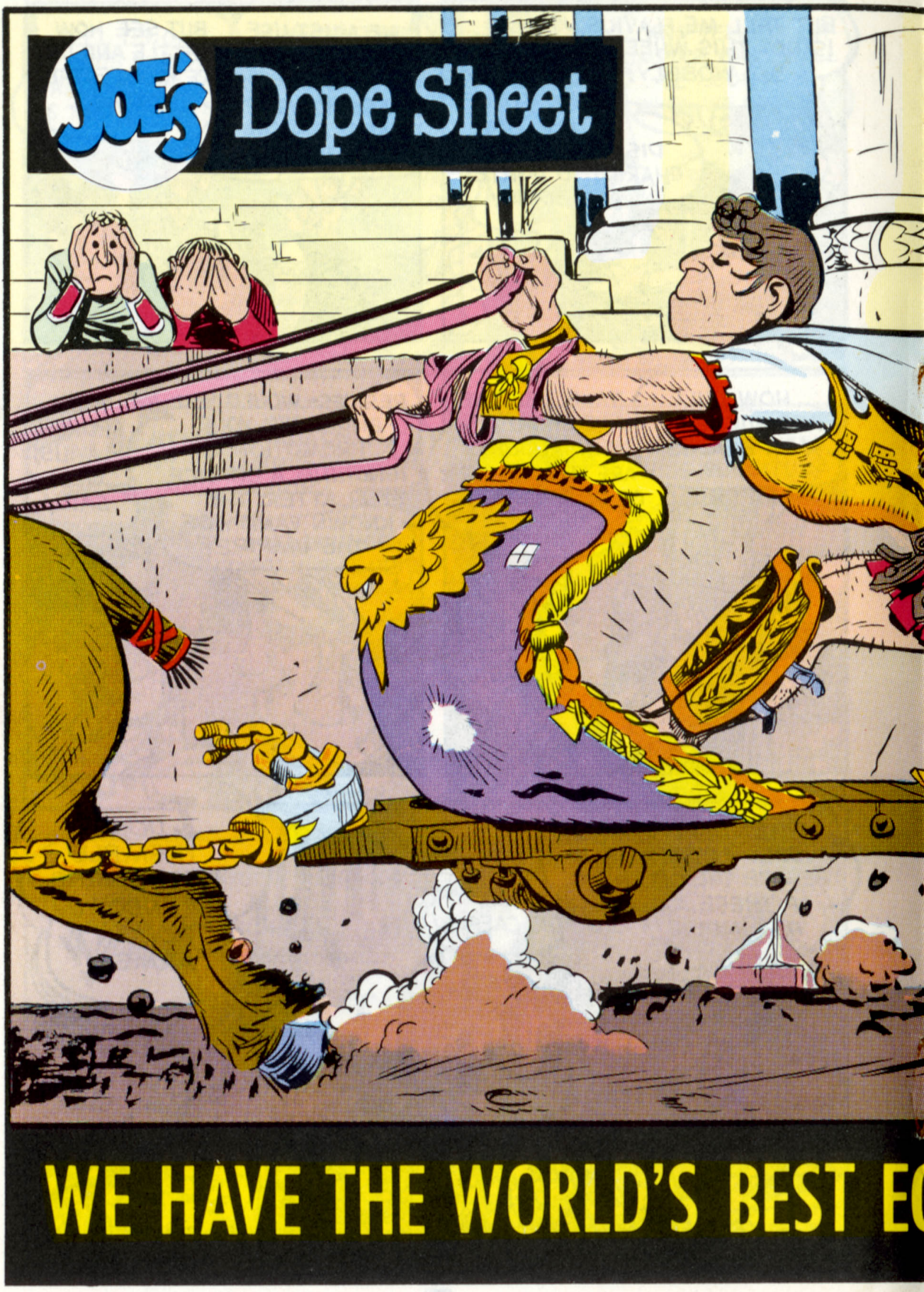
Mast Base Bracket MT-657/GRC, Mast Base MP-76

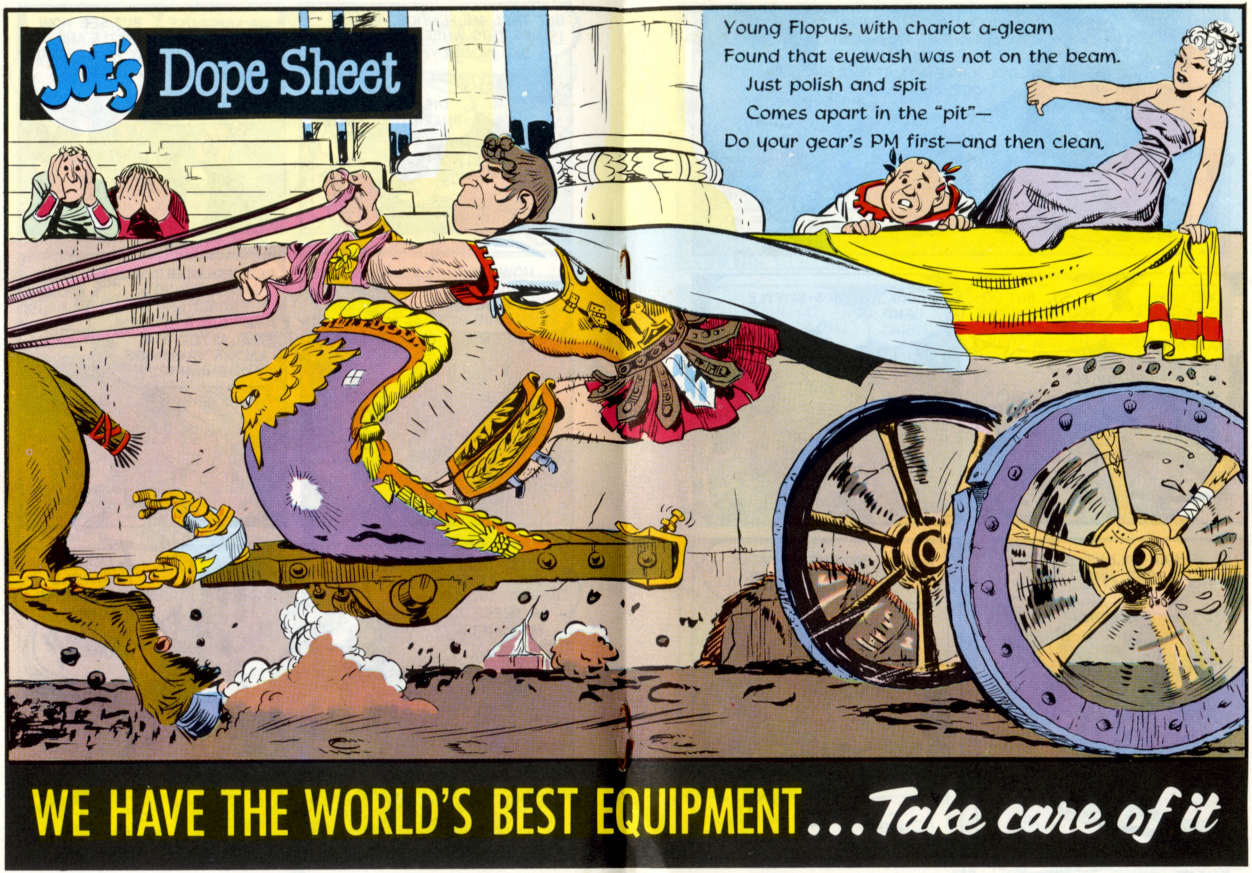


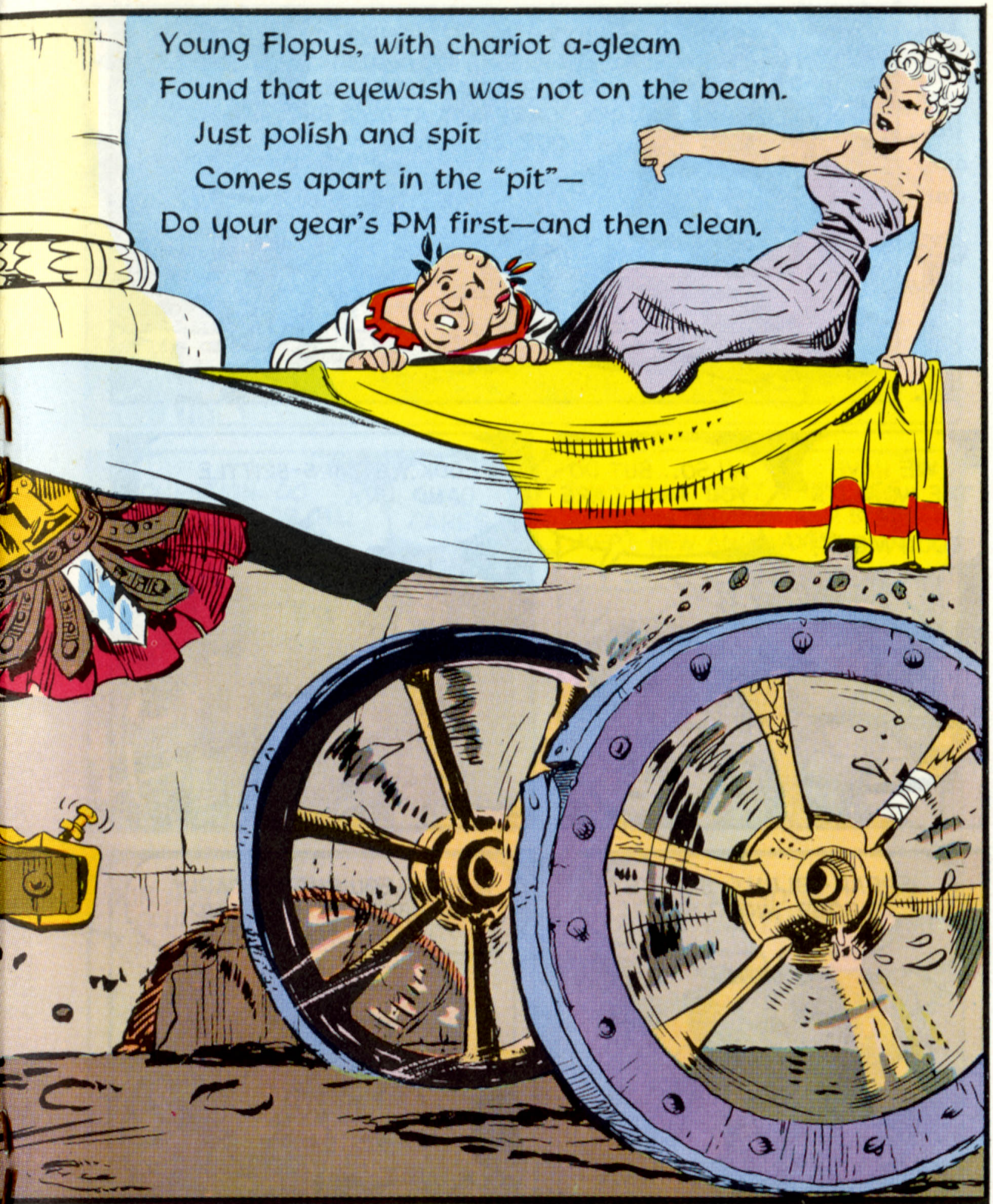

JOE'S
DOPE
THE DECLINE AND FALL OF THE ONLY ROMAN UMPIRE.
IN THE NAME OF CAESAR-I, E. PLURIBUS EUNUM, HAVING BEEN CHOSEN UMPIRE OF THE WAR GAMES NEXT MONTH...
"...DO HEREBY DECREE THAT THE SECOND LEGION, FIRST TIBERIAN ARMY CORPS PREPARE ITSELF FOR COMBAT READINESS."
FAH...WHICH GODS HAVE WREAKED THIS UPON US!
QUIET IN THE RANKS-FALL OUT AND GET BACK TO THE BARRACKS FOR INSPECTION.
ARE WE NOT GARRISON TROOPS THEN ??
ORDER OF THE DAY

TELL US, OH FLAVIUS BURSITUS, WHAT KIND OF MAN IS THIS EUNUM?
A VERY STERN COMMANDER WHO DEMANDS NEATNESS ABOVE ALL... I MIGHT ADD, THE POST OF UMPIRE WAS CREATED FOR HIM BY THE EMPEROR.
...AND TELL US, OH UMPIRE, WHAT SHALL WE LOOK FOR WHEN WE INSPECT?
NEATNESS! NON COMPUS... I WANT GLEAMING SWORDS AND SHINING ARMOR!
A MAGNIFICENT EPIGRAM, E. PLURIBUS, MAGNIFICENT.
HOW GOES IT HERE, FLAVIUS BURSITUS?
SEE HOW WE SHINE OUR ARMOR, OH NON COMPUS!!
OBSERVE! CHARIOTS THE COLOR OF SUNSHINE, BLADES OF SHIMMERING MOONLIGHT... AND SHIELDS LIKE GOLD...

. . . er, just one minute for the commercial

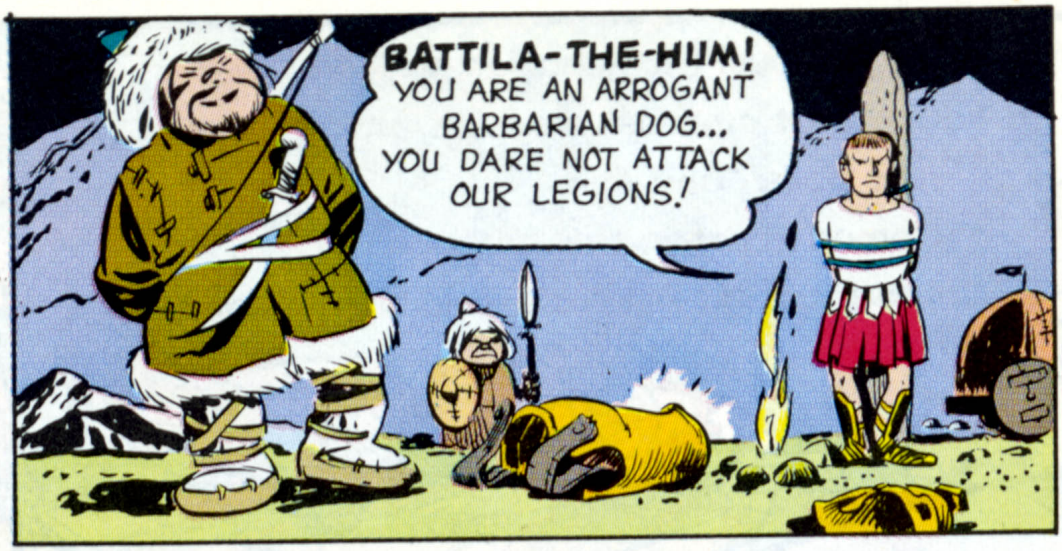

JOE'S
Dope Sheet
WE HAVE THE WORLD'S BEST EC

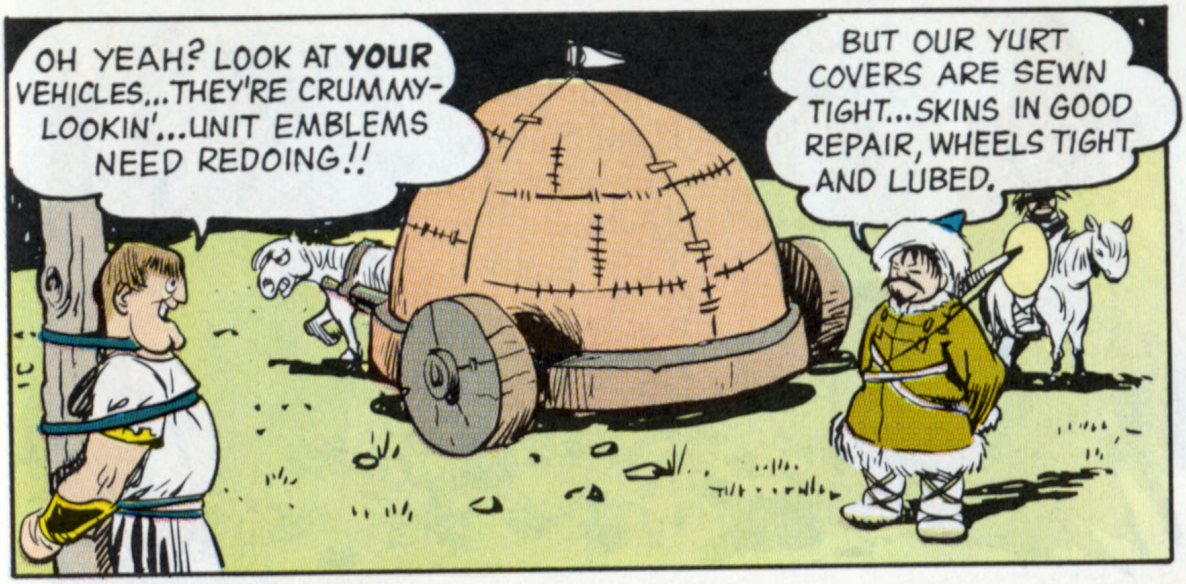

JOE'S Dope Sheet
Young Flopus, with chariot a-gleam
Found that eyewash was not on the beam.
Just polish and spit
Comes apart in the "pit"—
Do your gear's PM first—and then clean.
WE HAVE THE WORLD'S BEST EQUIPMENT...Take care of it



QUIPMENT . . . *Take care of it*

And now back to our story.



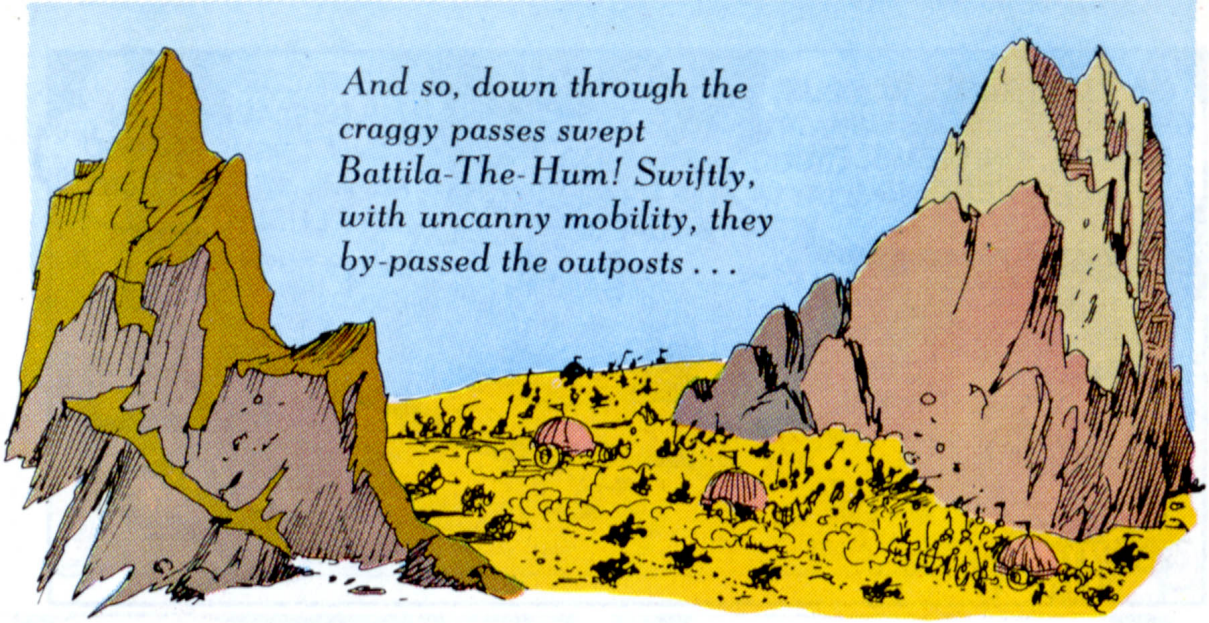

OH YEAH? LOOK AT **YOUR** VEHICLES...THEY'RE CRUMMY-LOOKIN'...UNIT EMBLEMS NEED REDOING!!
BUT OUR YURT COVERS ARE SEWN TIGHT...SKINS IN GOOD REPAIR, WHEELS TIGHT AND LUBED.

QUESTION: DO YOU **PAINT** OR **OIL** YOUR BOWS??
WHO CARES !!

I ASK ONLY THAT THEY ARE STRONG AND LIMBER AND STRINGS KEPT NEW AND WAXED...SEE!

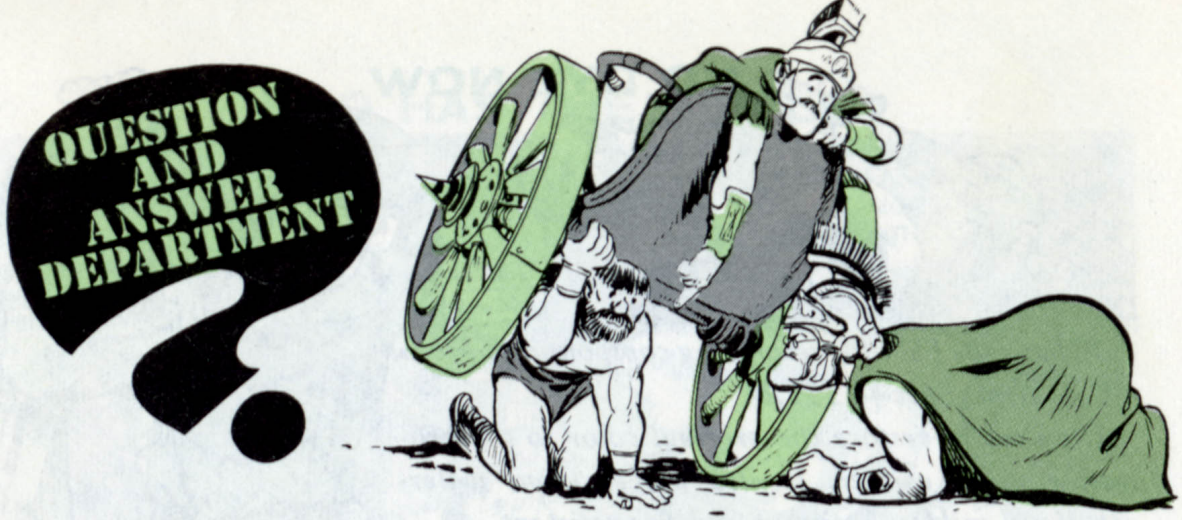
OUR MOTTO IS..."SIC TRANSIT, OCULUS WASHUM"...★ GASP
*Translation:
"When it doesn't run, polish."

OUR MOTTO IS..."UGH AGNUE YAK-YAK AYE WASH" ★★
**Translation:
"Keep it maintained and it will be clean enough."



And they fell upon the well equipped Romans with terrible effect . . . and when at last they returned to the frosty steppes—they left behind a shaken Umpire.

E. Pluribus learned nothing from this lesson. In battles to come he made the same mistake in maintenance . . . Thus began the decline and fall of the only Roman Umpire . . .

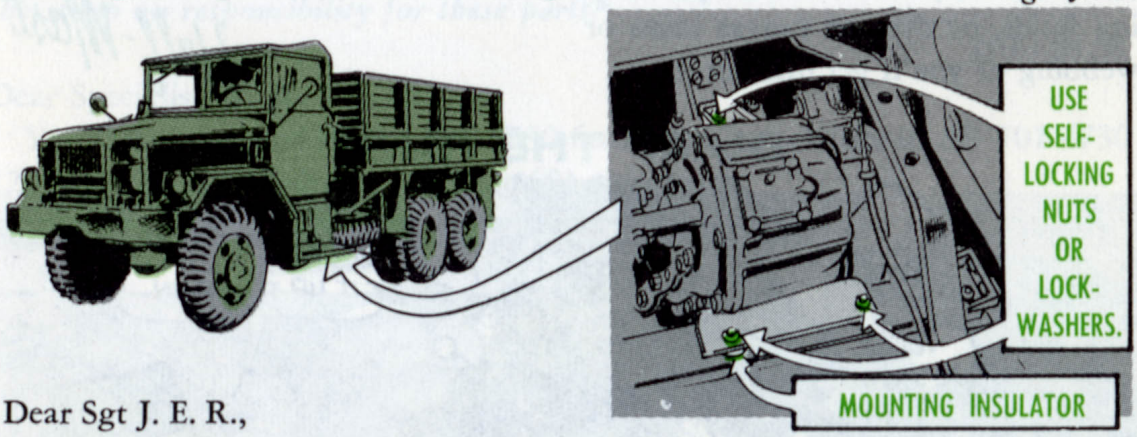


POOPED PADS

Dear Half-Mast,

We've been gigged for loose transfer mounting bolts on our M35 trucks even with the nuts as tight as the threads allow 'em to go.

What're we supposed to do—get new pads? Or are the inspectors just not allowing for "give" in these mounting insulators? *Sgt J.E.R.*



Dear Sgt J. E. R.,

Those mounting insulators under the transfer supports are made to take a special bolt that's threaded so the nut will go down just so far.

That's so you won't put too much squeeze on the insulators. Fact is, the purpose of those insulator pads is to let the transfer move a bit.

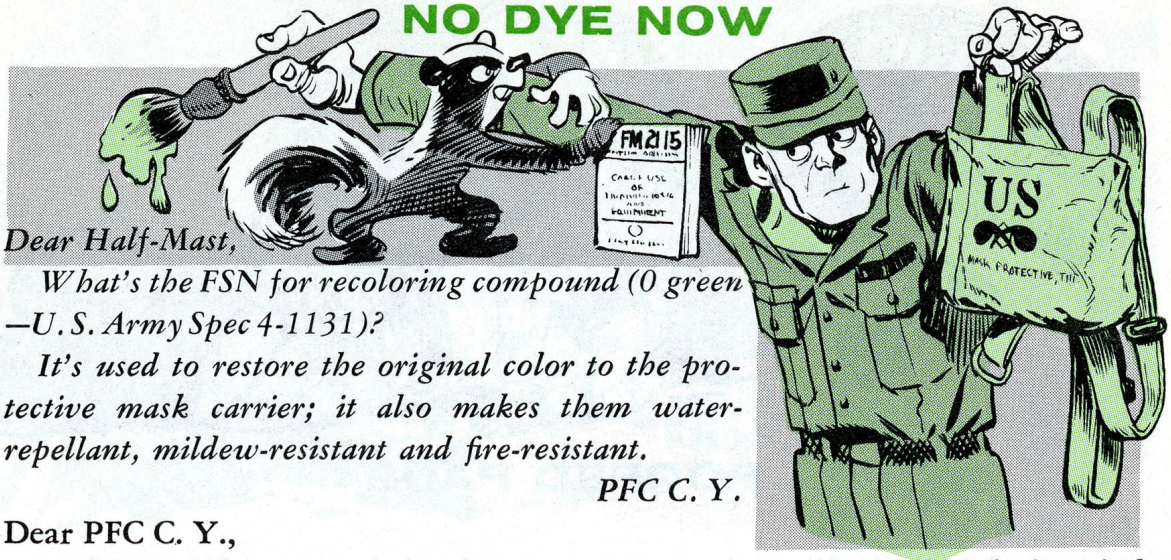
So . . . the mounting insulators shouldn't need replacing unless the transfer sags or is out of alinement. And no sag's likely unless your pads're squeezed or worn so thin that they're still loose after the nuts're down as far as they'll go.

About the best test for the tightness of the nuts is to make sure they can't be turned by hand . . . nor by a two-fingered twist with a wrench. In tightening they get 62 to 68 foot-pounds of torque.

One other thing you've got to remember: Those nuts should be the self-locking kind. If they're not, you'll need some lock-washers to hold 'em, like it says in para 119c(5) of TM 9-8022 (17 Dec 54).

Half-Mast

NO DYE NOW



Dear Half-Mast,

What's the FSN for recoloring compound (O green —U. S. Army Spec 4-1131)?

It's used to restore the original color to the protective mask carrier; it also makes them water-repellant, mildew-resistant and fire-resistant.

PFC C. Y.

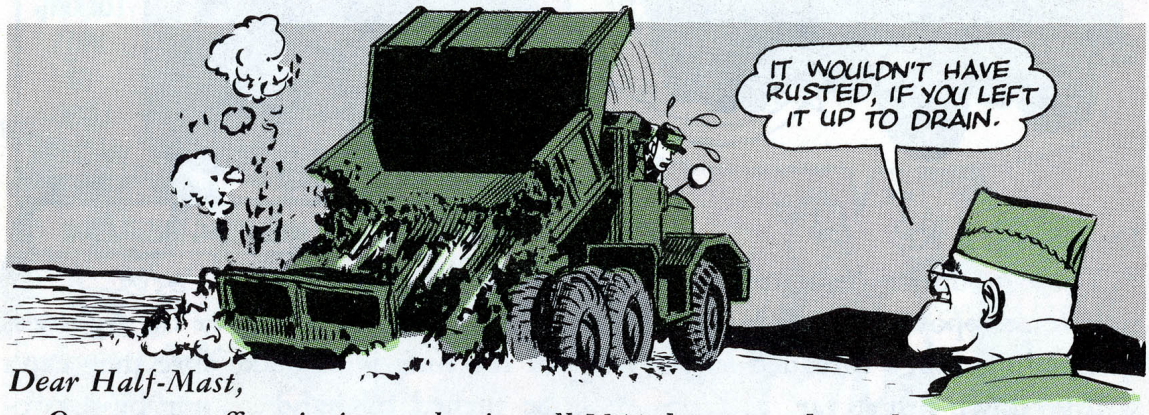
Dear PFC C. Y.,

Recoloring compound for use on canvas or web equipment is out. Change 1 (25 Nov 58) to FM 21-15 says do not use chlorine, yellow issue soap, cleaning fluids, or dyes on canvas items or webbing or you'll get discoloration.

Better keep this latest info in mind because it vetoes the dope in the TM's that say to use the recoloring compound.

Half-Mast

DUMP THE RUST



Dear Half-Mast,

Our motor officer insists on having all M51 dump trucks parked with the dump body up on safety braces.

Seems to me it would be safer to keep the bodies down when you can. What's the story on this?

Cpl J. A. G.

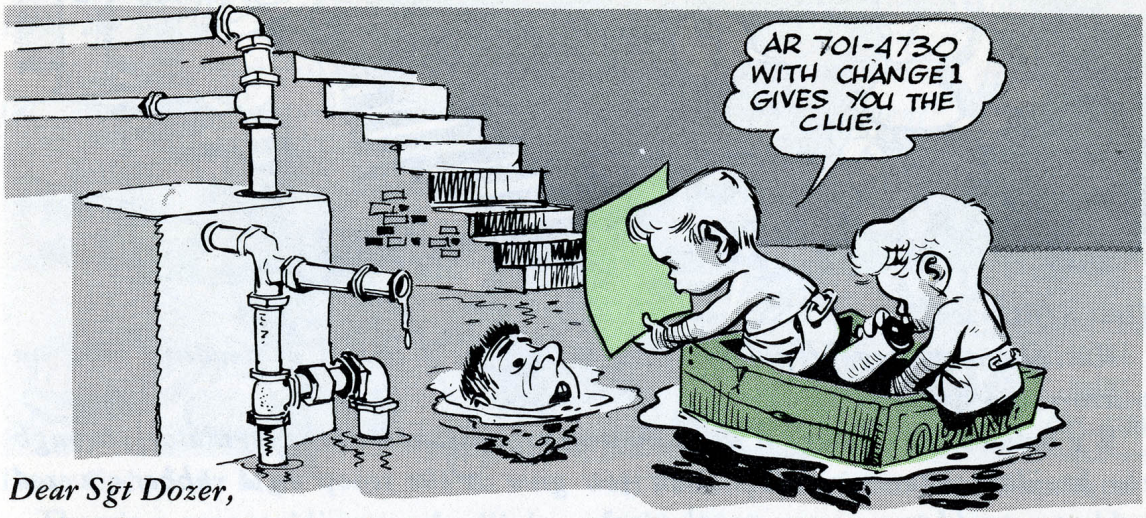
Dear Cpl J. A. G.,

Treat yourself to a coffee break for keeping an eye peeled for safety. It can be risky to go poking around under that dump body when it's raised . . . without safety braces.

But the motor officer's right. Those M51's should be parked with dump bodies up on safety braces to help drain off rainwater and hold down rust.

Half-Mast

WHO HAS THE NIPPLE?



Dear Sgt Dozer,

Out here in the boondocks, a man can't buzz over to a local plumber and pick up a few parts for a piping job.

So I need to know who supplies which FSC 4730 fittings and specialties. What's the scoop on responsibility for these parts?

SP/4 W. B.

Dear Specialist W. B.,

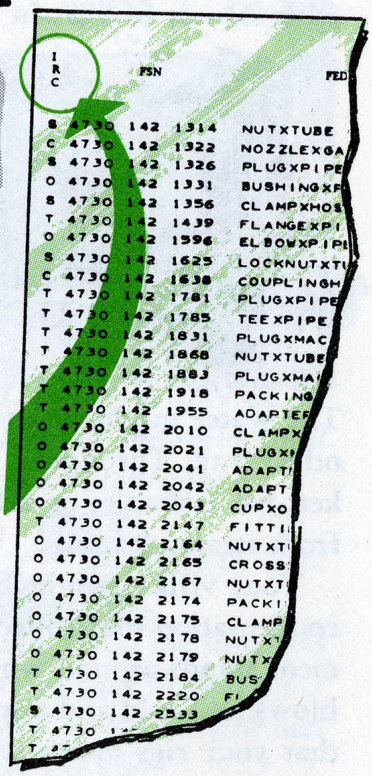
You'll find the rundown on FSC 4730 fittings and specialties in AR 701-4730 (29 Dec 59), and Change 1 (17 June 60).

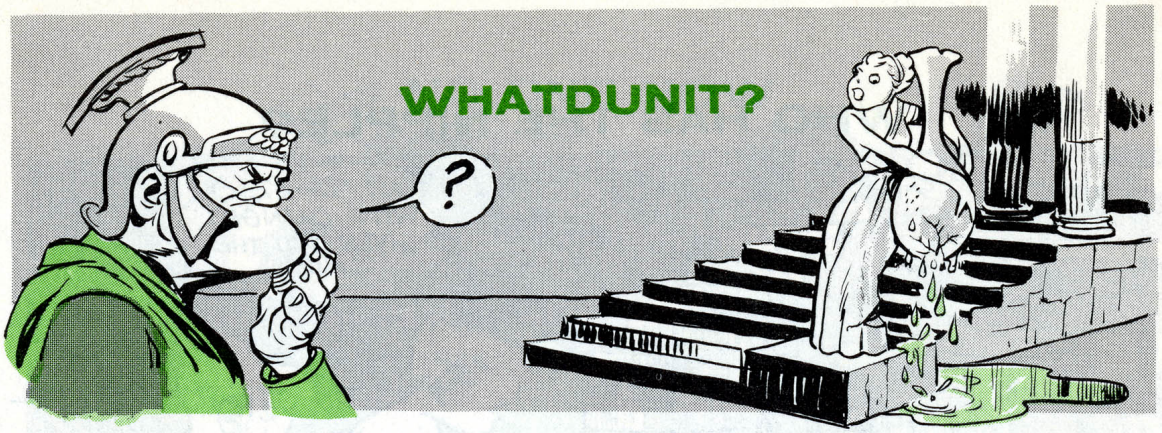
As the AR tells you, the Corps of Engineers is responsible for specs, standards, and cataloging for this whole class of parts—but **not** for all the actual buying, stocking, and supplying.

In FSN order, AR 701-4730 lists each item that is **not** the responsibility of Engineers. This list of exceptions includes an IRC (Item Responsibility Code) column, so you can see which tech service is responsible for the parts you need.

Simple as picking pepper. If a Class 4730 part isn't pegged in your SM, check it out in AR 701-4730 and find out which service is responsible for supply.

Sgt Dozer





Dear Sgt Dozer,

Rusted-out voltage regulators are costing us a potful of deadline time on tractors and graders.

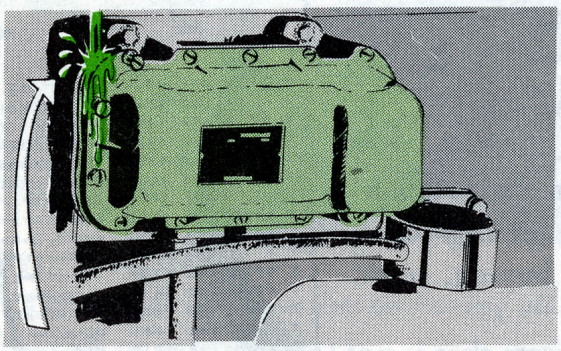
We believe the damage is done by water that leaks into the regulators through the braided connector cables. Can you give us the scoop on a rubber-covered cable we could use on our regulators?

CWO S. T.

Dear Mr. S. T.,

Rust-killing of regulators could be one of those crimes where the guiltiest-looking party didn't necessarily do the dirty work.

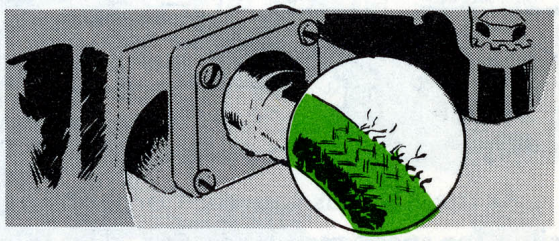
So before you pin the whole crime on the braided cable, why not check out other causes of rust in the regulator?



The water might be sneaking in some other way. Through a bad cover gasket, for example, or a loose cover. Or from steam cleaning.

Your villain might be a buildup of condensation that collects when equipment stands around while the weather blows hot, cold and humid. It could be that your rigs aren't working enough hours for operating heat to dry up overnight dampness.

Those braided cables are waterproof and they shouldn't give you trouble unless they have broken strands. They're needed to help suppress radio interference.



Your best bet is to keep the regulator cover clean and dry and once a month remove the cover and clean them up inside.

Here's a tip on replacing voltage regulators.

Replacement units don't necessarily come with the correct gap setting for your rig. So you'll want to check 'em out like it says in your TM before they hatch trouble in your generators and batteries.

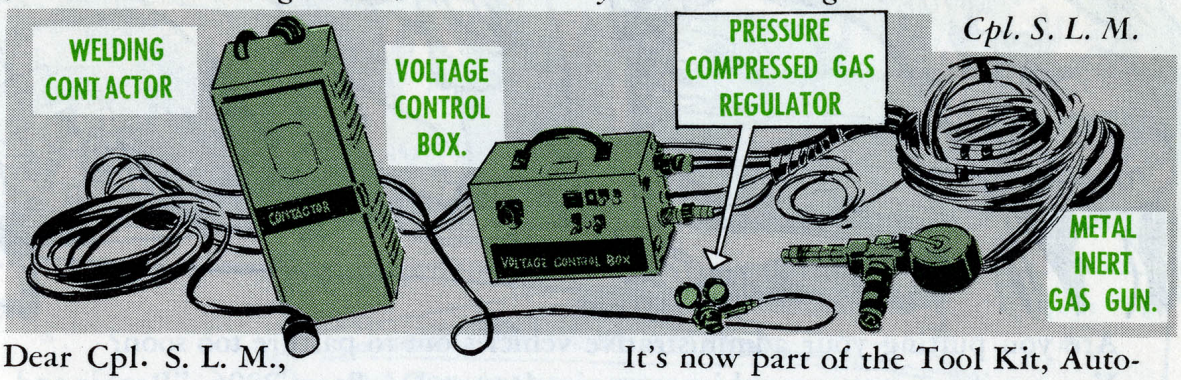
Sgt Dozer

WHO SEZ YOU CAN'T?

Dear Half-Mast,

I've heard some discussion as to whether you can or can't weld non-ferrous (aluminum and magnesium) metals. Can you settle the argument?

Cpl. S. L. M.



Dear Cpl. S. L. M.,

There's a new welding set that'll do the job. It consists of a MIG (Metal Inert Gas) gun, voltage control box, welding contactor, and pressure compressed gas regulator to be used (with the conventional 300-amp arc welding machine with 115-volt AC or DC auxiliary panel) for welding non-ferrous parts.

The set's called Welding Set, Arc, Inert Gas Shielded, FSN 3431-691-1415.

It's now part of the Tool Kit, Automotive Maintenance, Organizational, (2d Echelon), Set No. 2, Supplemental, FSN 4940-754-0743, (SM 9-4-4940-A08), and Shop Set, Welding, Field Maintenance, FSN 3431-357-7268, (SM 9-4-3431-A05).

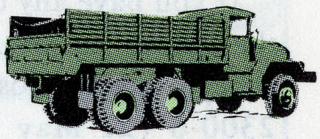
The welding set is an Engineer item, so order it from them . . .

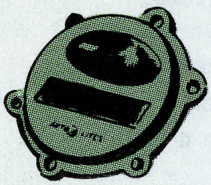
Half-Mast

LIGHT COVER, PLEASE

Dear Half-Mast,

TM 9-2320-211-20P (January 59) does not list the left stop and taillight door (cover) on page 47 with other taillight doors for the 5-tonners.





The part is listed in the Ord 7 SNL G-744 as FSN 6220-752-6020 H-004, 7526020, DOOR, blackout and service tail and stoplight, w/Screws, assy (left stop and taillight).

Do we or don't we get it?

SP/4 D. G. E.

Dear SP/4 D. G. E.,

Just got word that Door, blackout and service tail and stoplight w/screws, Assembly (left stop and taillight), FSN 6220-752-6020, is an authorized item.

Seems as though when the info was transferred from Section II of Ord 7 SNL G-744 to TM 9-2320-211-20P that cover (door) was left out.

Half-Mast

A LOT DEPENDS ON THE TALE IT TELLS . . .

DA form

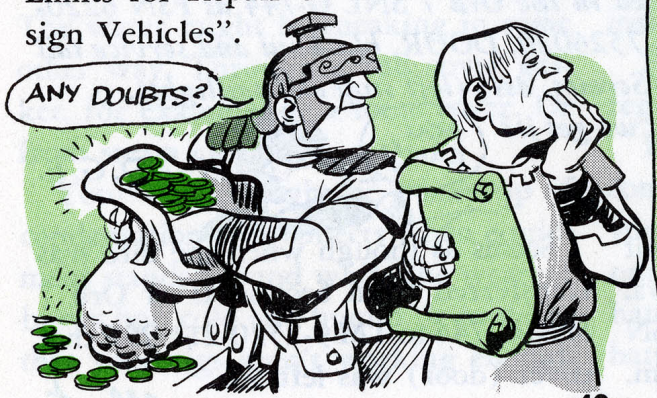
Are you putting your administrative vehicles out to pasture too soon?

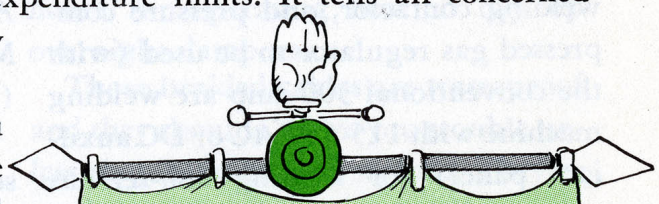
You are if you post everything you give 'em on DA Form 2206, "Repair and Data Record for Commercial Design Vehicles."

That's right! DA Form 2206 keeps track of repair costs which are charged against a vehicle's authorized repair expenditure limits. It tells all concerned when it's time to stop spending money on maintenance of older vehicles . . . when to retire and replace 'em. You might say it actually calls the tune on the serviceable life of commercial design vehicles.

So—in all fairness to 'ole faithful—it's wise to know which maintenance costs are recorded on the form—and which are not.

If you have any doubts about any of the entries on your 2206's now's the time to take a close look at AR 750-2300-6 (21 May 59) "Expenditure Limits for Repair of Commercial Design Vehicles".





In par 5c the AR lists the following items as chargeable against a vehicle's accumulated expenditure limits:

I

Actual cost of repair parts (when exchange assemblies or sub-assemblies are used, the exchange cost of such assemblies will be charged).

II

Cost of all repairs needed to keep a vehicle safe and serviceable.

III

Cost of all direct overhead involved. (See p. 45 titled "About Direct Overhead Labor Charges" for more info on this.)

IV

Cost of inspection time on unscheduled maintenance and repairs.

V

Cost of all direct labor (actual time a mechanic and other shop personnel work on a vehicle).

A LOT DEPENDS ON THE TALE IT TELLS...

DA form 2206

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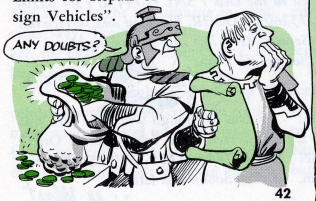

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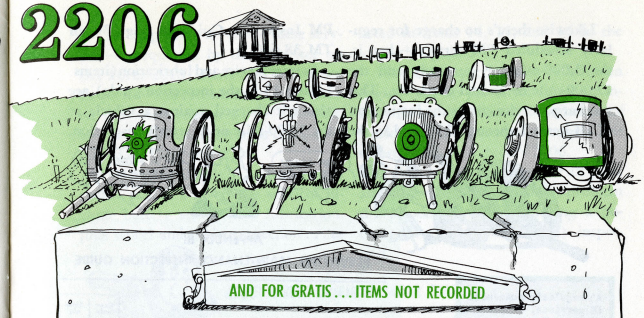


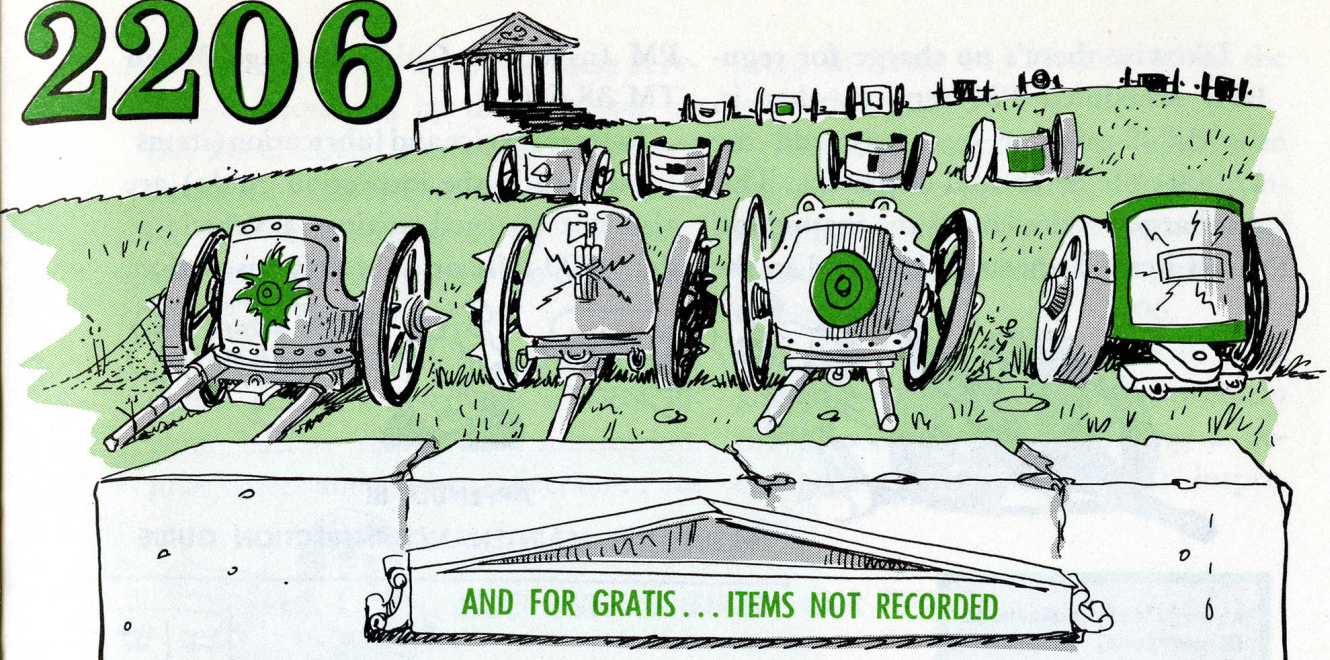
AND FOR GRATIS... ITEMS NOT RECORDED

In par 5e the AR lists the maintenance and up-keep items which are **not charged** against a vehicle. The list includes:

1. Tires, tubes, batteries, tire chains, vehicle tools, anti-freeze and seat covers. (Note: Although a vehicle isn't docked for these replacement items, they do get **recorded on the back** of a vehicle's DA Form 2206. This info's important to the management people. That's why when a vehicle's retired from service you send its 2206 to: U. S. Army Transportation Administrative Transport Management Agency, Fort George G. Meade, Maryland... like it says in par 20 of TM 38-660-2 (Aug 59).

2. Cost of processing and de-processing a vehicle.
3. In-storage maintenance costs.
4. Cost of repairs to mounted special equipment (work on canvas, winches, booms, etc.).
5. Any before, and after operation PM checks performed by the driver, and any minor maintenance which can be easily done, for example, tightening a loose wire during refueling stop, without need of a work order.
6. Cost of modifications. Neither labor nor the cost of the items involved are chargeable. For example, installations such as a radio, or a heavy duty generator... or even a "dog-house" on the rear of a pickup truck, are not chargeable.

2206



AND FOR GRATIS... ITEMS NOT RECORDED

In par 5e the AR lists the maintenance and up-keep items which are **not charged** against a vehicle. The list includes:

1. Tires, tubes, batteries, tire chains, vehicle tools, anti-freeze and seat covers. (Note: Although a vehicle isn't docked for these replacement items, they do get **recorded on the back** of a vehicle's DA Form 2206. This info's important to the management people. That's why when a vehicle's retired from service you send its 2206 to: U. S. Army Transportation Administrative Transport Management Agency, Fort George G. Meade, Maryland... like it says in par 20 of TM 38-660-2 (Aug 59).

2. Cost of processing and de-processing a vehicle.
3. In-storage maintenance costs.
4. Cost of repairs to mounted special equipment (work on canvas, winches, booms, etc.).
5. Any before, and after operation PM checks performed by the driver, and any minor maintenance which can be easily done, for example, tightening a loose wire during refueling stop, without need of a work order.
6. Cost of modifications. Neither labor nor the cost of the items involved are chargeable. For example, installations such as a radio, or a heavy duty generator... or even a "dog-house" on the rear of a pickup truck, are not chargeable.

Likewise there's no charge for regularly scheduled PM services—that is, the 3,000-mile or quarterly and the 12,000-mile or annual check-ups. This no-charge service covers the inspection of all items 1 through 13 listed in the PM Inspection Guide on page 34, of TM 38-660-2.

Battery service and lubrication (items 14 and 15 in the inspection guide) are also not charged against a vehicle at the 3,000-mile or quarterly inspection.

At regularly scheduled PM services, inspection of items 1 thru 13 is a no-charge service.

At Q-service or 3,000-mile check, inspector will show items 14 and 15 as no-charge services on the work order (DA Form 2218).

And at annual or 12,000-mile check 14, 15, and 16 are free services as noted by inspector on DA Form 2218.

Item 17 is always requested by inspector at the annual or 12,000-check. . .but engine tune-up is a repair expenditure and it is recorded on a vehicle's 2206.

APPENDIX III

PREVENTIVE MAINTENANCE INSPECTION GUIDE

	Quarterly	Annually
Item 1—Leaks: General visual inspection and accident damage, engine oil lines, fuel tank, fuel lines, coolant, exhaust system, crank case, transmission, transfer case, differential, gaskets, brake hoses, brake lines.	X	X
Item 2—Ignition Switch, Starter Switch, Starter: Contact, starting speed.	X	X
Item 3—Engine Operation: Easy starting, smooth idle, governed speed, fuel pump, fuel filter.	X	X
Item 4—Instruments: Oil pressure, ammeter, voltmeter, speedometer, tachometer, fuel gage, temperature gage, air pressure gage Air Pressure Build-up: Governor cut-in, cutoff, air leaks. Belts, Pulleys, Fan: Alignment, tension, wear.	X	X
Item 5—Safety and Signal Devices: Horn, mirror, windshield wipers, lights, switches, reflectors, flares, flags, fire extinguishers.	X	X
Item 6—Brakes, Foot and Hand: Pedal travel, release, ratchet, grab, side pull, linkage, hoses, fluid, air tanks, hold, vents.	X	X
Item 7—Clutch and Clutch Controls: Pedal travel, drag, noise, chatter, grab, slip.	X	X
Item 8—Power Train, Suspension and Frame: Transmission, transfer case, propeller shafts, universal joints, differential, mounting, vents, springs, torque arms, shock absorbers.	X	X
Item 9—Steering: Alignment, free play, caster, camber, toe-in, linkage, kingpins, bushings, tire balance.	X	X
Item 10—Body: Mountings, controls, paint and markings, pintles	X	X
Item 11—Tires: Cuts, damage, abnormal wear, pressure, valve caps	X	X
Item 12—Fifth Wheel, Trailer Landing Wheels, Power Takeoff, Hoist, Winch, Derrick: Operation, mountings, lines, cables.	X	X
Item 13—Cooling System: Coolant, radiator, cap, hoses, pump, antifreeze (in season).	X	X
Item 14—Battery: Clean and service	X	X
Item 15—Lubricate Vehicle and Equipment	X	X
Item 16—Wheels, Wheel Cylinder, Hubs, Drums, Wheel Bearings, Brake Shoes.		X
Item 17—Engine Tuneup: (See appropriate technical publication)		X

Note 1. Items 14, 15, 16 and 17 will not be preinspected. Those items will be included as work required on the lower portion of DA Form 2218 for appropriate maintenance service.

Note 2. This inspection guide will be used in connection with the accomplishment of the initial inspection during quarterly or annual periodic services. To assist personnel in inspecting vehicles, the inspection guide should be covered in clear acetate paper which can be written upon with a grease pencil. This covering should be purchased or developed locally.

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The shop gives a vehicle these services—as requested by the inspector on DA Form 2218 "Parts Slip and Work Request"—and records the cost for same on the work request form. This cost, however, like the inspection cost, is not posted on DA Form 2206.

At the 12,000-mile or annual inspection a vehicle's no-charge services include battery service and lubrication, plus wheel and brake inspection . . . as listed in items 14, 15, and 16 in the inspection guide.

This PM inspection also calls for an engine tune-up job (item 17 in the inspection guide), but this maintenance work is a repair expenditure, and it is recorded on the vehicle's 2206.

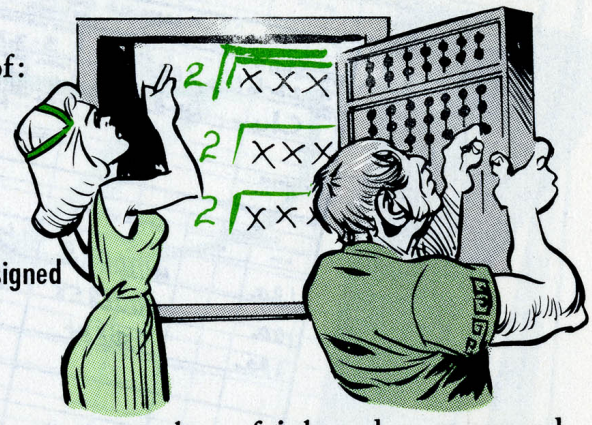
A vehicle's also charged for all parts and labor needed to fix up any problem the inspector may find during a no-charge (regularly scheduled) inspection.

ABOUT DIRECT OVERHEAD LABOR CHARGES

A survey of motor pools resulted in this simple formula for figuring direct overhead labor charges.

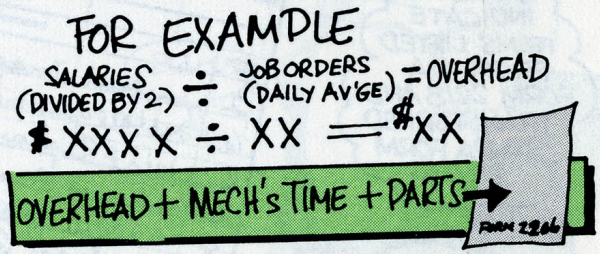
Divide by two the total daily salaries of:

2 ⟌ SHOP FOREMAN (maintenance supervisor)
CLERICAL HELP
SUPPLY PERSONNEL
(including parts and procurement clerks assigned to repair parts supply room)



Divide the result of the above by the average number of job orders prepared daily. This figure will represent the direct overhead cost for each job order.

The total of the direct overhead labor cost plus the mechanic's time (hourly rate) plus the cost of repair parts used is the amount which is posted on the DA Form 2206.



EXPENDITURE LIMITS

To find the expenditure limits for various types of commercial type vehicles you use the Table I on page 7 of AR 750-2300-6. Life-long repair costs allowed each vehicle represents a given percentage—listed in Table I—of the original cost of the vehicle. The price used (original) is the vehicle's contract price, or the price listed in SM 9-2-2300, minus 6% surcharge which is included in the pricing guide price.

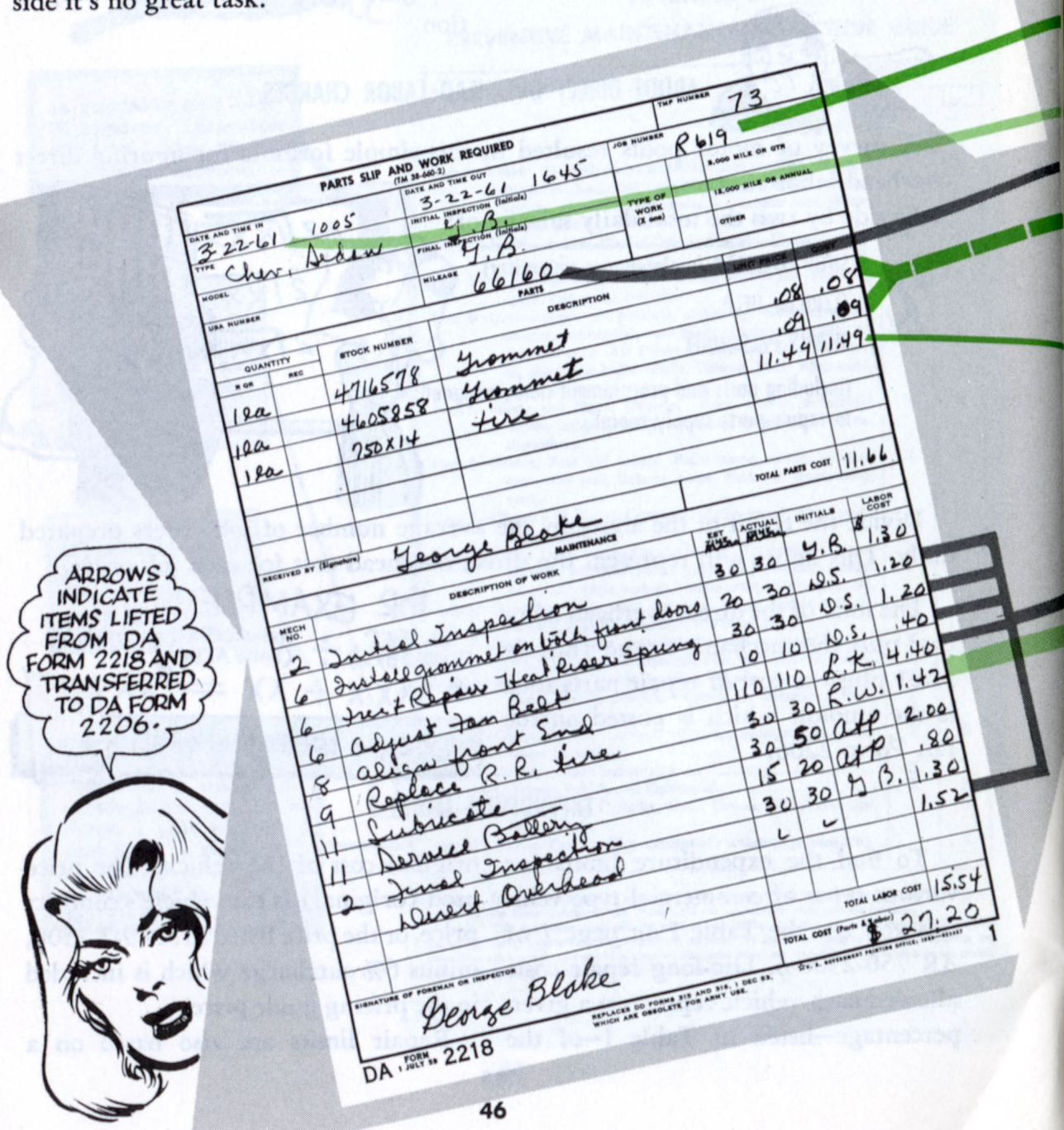
Repair limits are also based on a

vehicle's age . . . either in years or equivalent age in mileage.

One-time-repair limits for all vehicles are also based on a vehicle's age, and this, too, you'll find in Table I of the AR.

HOW TO RECORD FROM DA FORM 2218 TO:

The organizational maintenance shop lists all labor, parts and costs on the DA Form 2218. From this Form (and from any DA Form 811's) it's up to you to lift the figures which belong on a vehicle's 2206. Once you get the forms side by side it's no great task.



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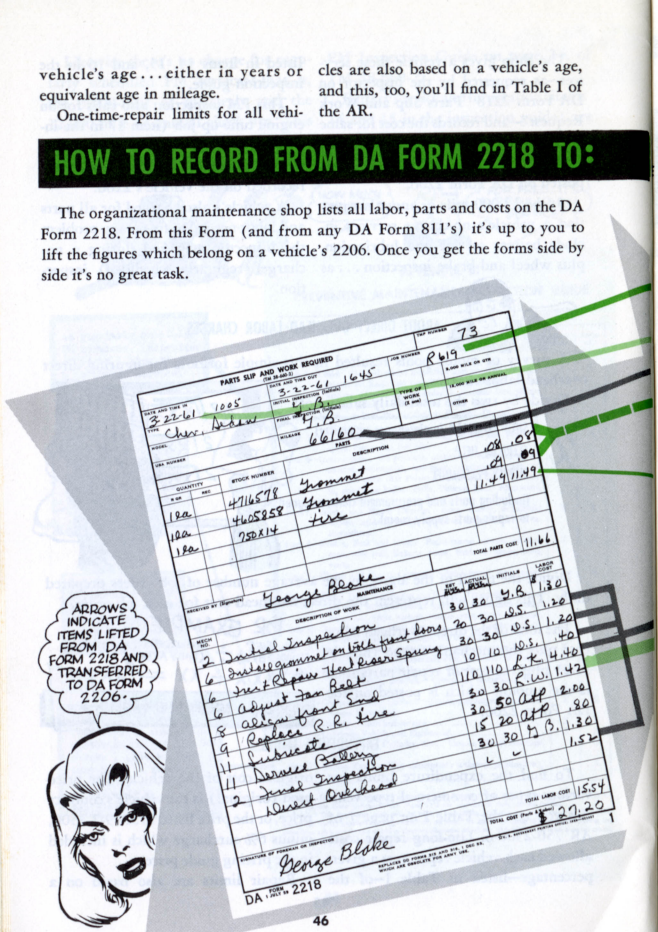
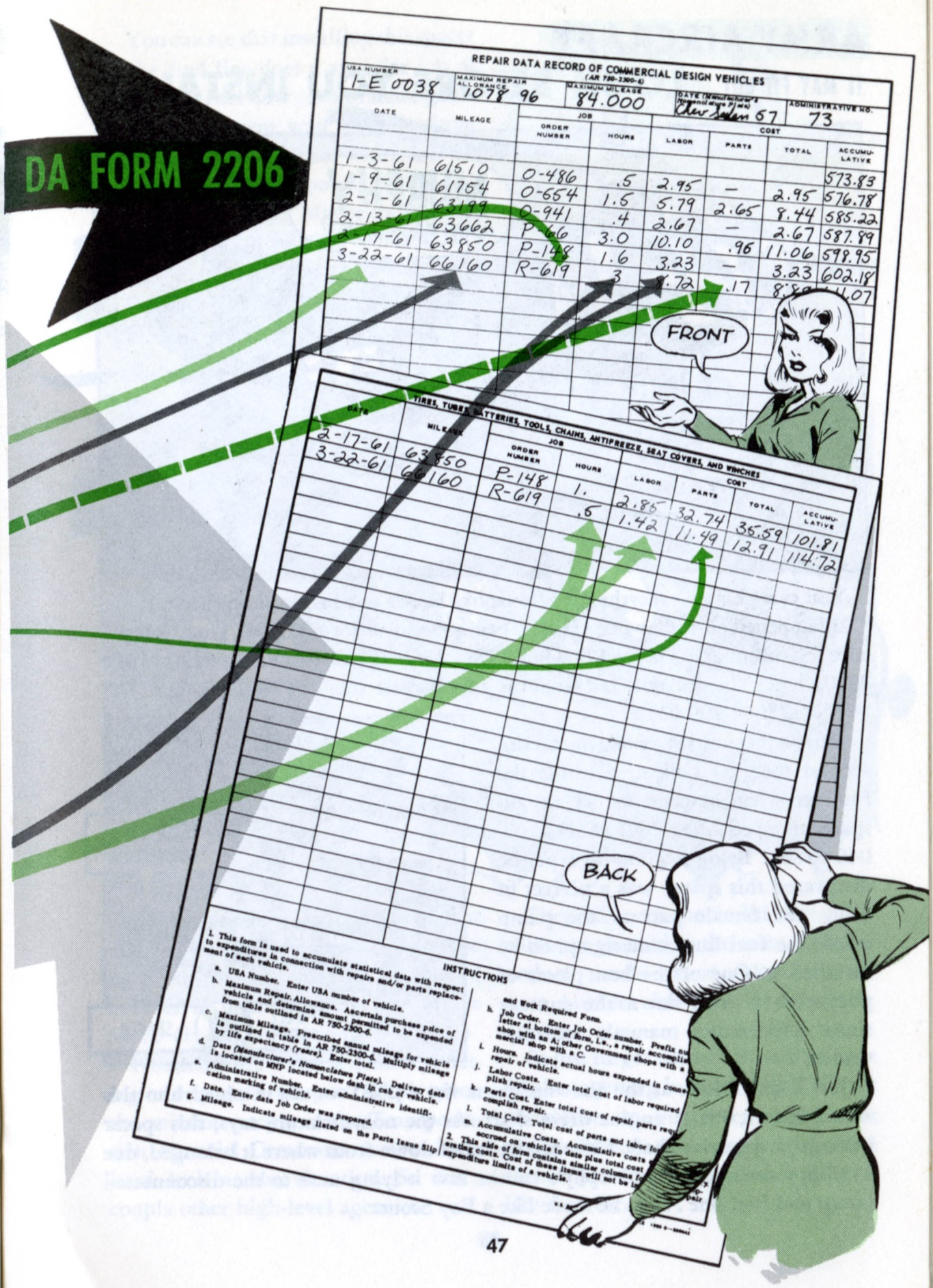
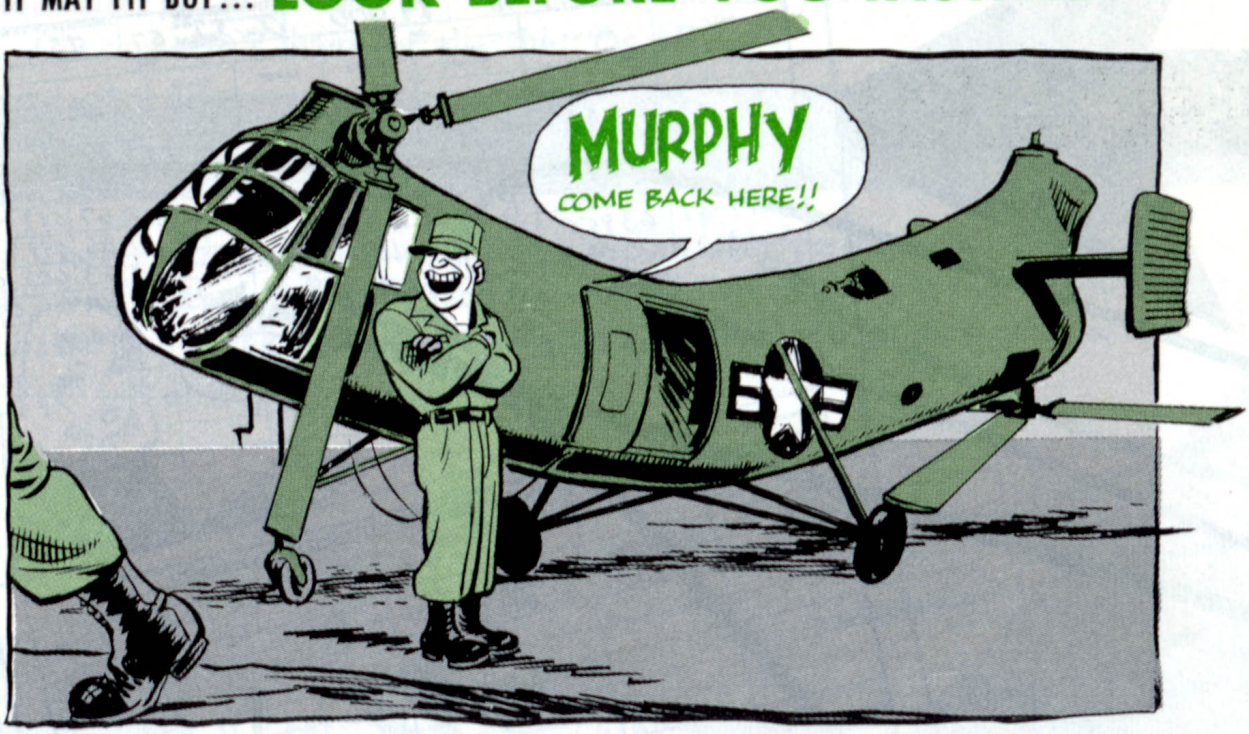


DA FORM 2206


DA FORM 2206
REPAIR DATA RECORD OF COMMERCIAL DESIGN VEHICLES
(AR 750-2300-6)
USA NUMBER
1-E 0038
MAXIMUM REPAIR ALLOWANCE
1078 96
MAXIMUM MILEAGE
84.000
DATE (Manufacturer's Nomenclature Plate)
Dec Jan 67
ADMINISTRATIVE NO.
73
DATE
MILEAGE
JOB
ORDER NUMBER
HOURS
COST
LABOR
PARTS
TOTAL
ACCUMULATIVE
1-3-61 61510 O-486 .5 2.95 — 2.95 573.83
1-9-61 61754 O-654 1.5 5.79 2.65 8.44 576.78
2-1-61 63199 O-941 .4 2.67 — 2.67 585.22
2-13-61 63662 P-66 3.0 10.10 .96 11.06 587.89
2-17-61 63850 P-148 1.6 3.23 — 3.23 598.95
3-22-61 66160 R-619 3 .72 .17 602.18
FRONT
TIRES, TUBES, BATTERIES, TOOLS, CHAINS, ANTIFREEZE, SEAT COVERS, AND WINCHES
2-17-61 63850 P-148 1. 2.85 32.74 35.59 101.81
3-22-61 66160 R-619 .6 1.42 11.49 12.91 114.72
BACK
INSTRUCTIONS
1. This form is used to accumulate statistical data with respect to expenditures in connection with repairs and/or parts replacement of each vehicle.
a. USA Number. Enter USA number of vehicle.
b. Maximum Repair Allowance. Ascertain purchase price of vehicle and determine amount permitted to be expended from table outlined in AR 750-2300-6.
c. Maximum Mileage. Prescribed annual mileage for vehicle is outlined in table in AR 750-2300-6. Multiply mileage by life expectancy (years). Enter total.
d. Date (Manufacturer's Nomenclature Plate). Delivery date is located on MWP located below dash in cab of vehicle.
e. Administrative Number. Enter administrative identification marking of vehicle.
f. Date. Enter date Job Order was prepared.
g. Mileage. Indicate mileage listed on the Parts Issue Slip and Work Required Form.
h. Job Order. Enter Job Order number. Prefix with letter at bottom of form, i.e., a repair accomplished shop with an A; other Government shops with a C.
i. Hours. Indicate actual hours expended in connection repair of vehicle.
j. Labor Costs. Enter total cost of labor required to accomplish repair.
k. Parts Cost. Enter total cost of repair parts required accomplish repair.
l. Total Cost. Total cost of parts and labor for
m. Accumulative Costs. Accumulative costs accrued on vehicle to date plus total cost
2. This side of form contains similar columns for operating costs. Cost of these items will not be limited expenditure limits of a vehicle.

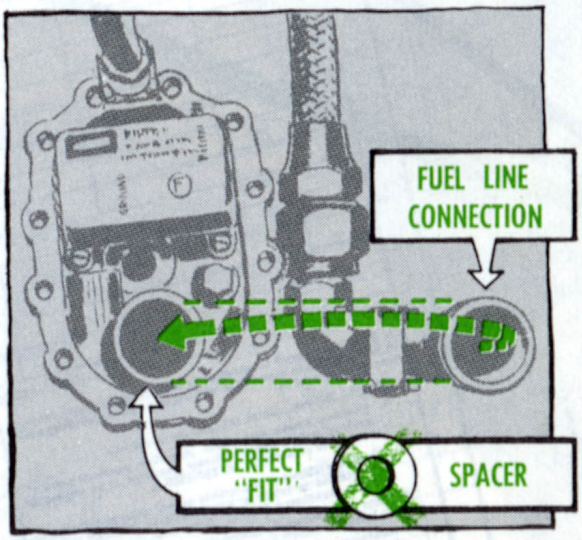
ARMY AIRCRAFT

IT MAY FIT BUT... LOOK BEFORE YOU INSTALL



You can't blame everything on Murphy. Here's one his cousin pulled.

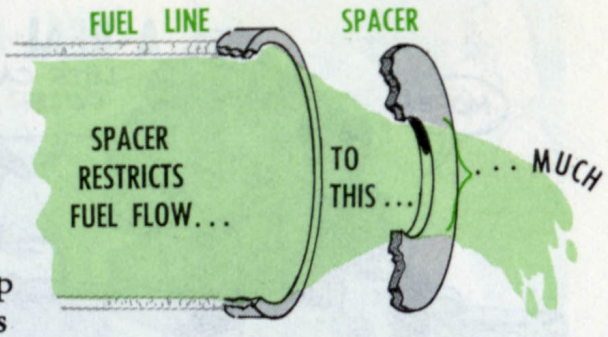
It happened on a Shawnee (H-21) being modified for a TCTM (Time Compliance Tech Manual). The fuel line hose, FSN 1560-707-6844 (P/N 601000-16D-0280) had to be disconnected from the fuel booster pump, FSN 2915-624-5347 (P/N 122637-200-03).



Murphy's cousin was puttering around the fuel tank area inside the fuselage when he came across an odd spacer stamped 22D3169-1 (FSN 1560-040-6188). Being a gung-ho type, he discovered this spacer was a perfect fit inside the female part of the pump where the fuel line connects up. So he installed it. One of the best pieces of guesswork to roll down the runway since maintenance manuals were invented.

Just a quick look at the Shawnee parts list (-20P) would've clued him this was a Spacer, Plate: engine drive shaft. As the nomenclature says, this spacer belongs to the drive shaft. Chances are it fell down from where it belonged, due to sloppy maintenance. Murphy's cousin saw it lying next to the disconnected pump and fuel line . . . so he made like a Boy Scout.

You can see that installing this spacer in the fuel line does a superior job of restricting fuel flow . . . a practice guaranteed to prevent your chopper from operating in a manner to which it is accustomed under full power conditions.



Isolated incident? Maybe so. But keep an eye peeled for Murphy's cousin. He's the hangar brain who can identify and install any part you throw at him without checking the books first. He's got too many buddies agreeing with him that "if a part fits, install it!"

THE SUN SHALL STILL SHINE IN

It was great fun while it lasted, but the final word's come down. There'll be no green plastic sunshades or colored bubbles to make a shady lady of the Sioux (H-13) swingwing.

Not that there wasn't a noble try. Acting on requests from you cockpit types, the aviation people at the Transportation Materiel Command took a long, hard look at the situation. So did a coupla other high-level agencies.

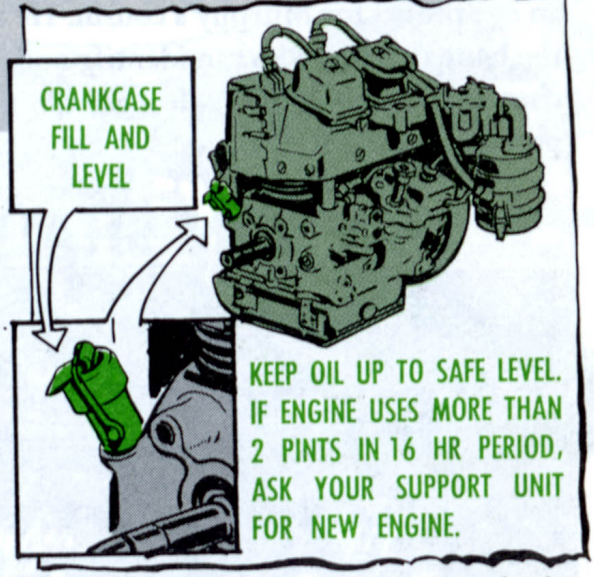
They all sorta concluded that there isn't enough need at the moment to introduce sunshades or colored plexiglass bubbles into the Army supply system.

So just forget what PS 91 said on page 58 about getting in touch with TMC for permission to use green transparent plastic shades. And keep your bubble clear of paint, wax, whitewash and stuff like that there.

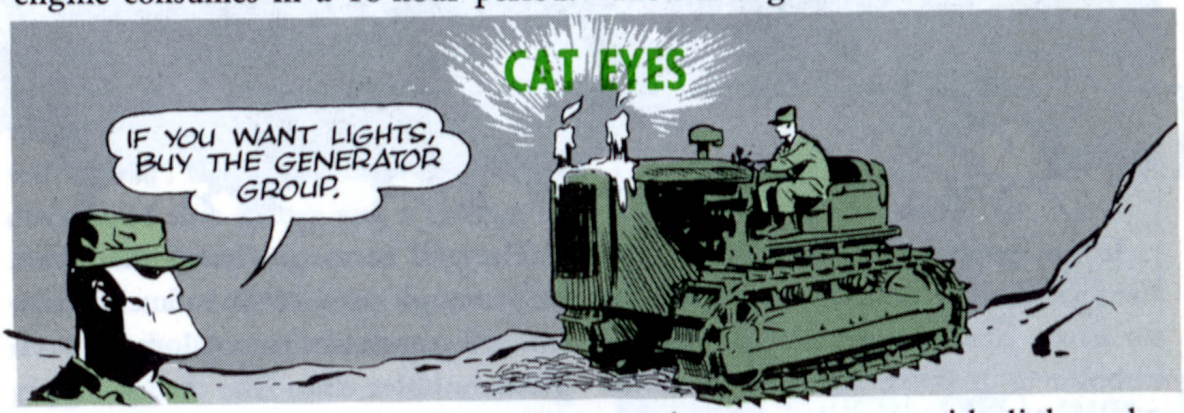
Some of the 3-HP Military Standard Engines, Model 2AO16-1, have turned out to be real heavy drinkers. They gulp down more oil in four hours of operation than many of their bigger brothers.

Comes a time when you gotta do something about it—you can't chance the oil level dropping to an unsafe level between checks.

Sooo-oo-o, continue to check your engine every four hours of operation and bring the oil up to a safe operating level—just like you do now. However, jot down the amount of oil that the engine consumes in a 16-hour period.



If it uses more than two pints during this time, and since you can't give it the cure, pass the word along to your support unit and have them give you another engine.



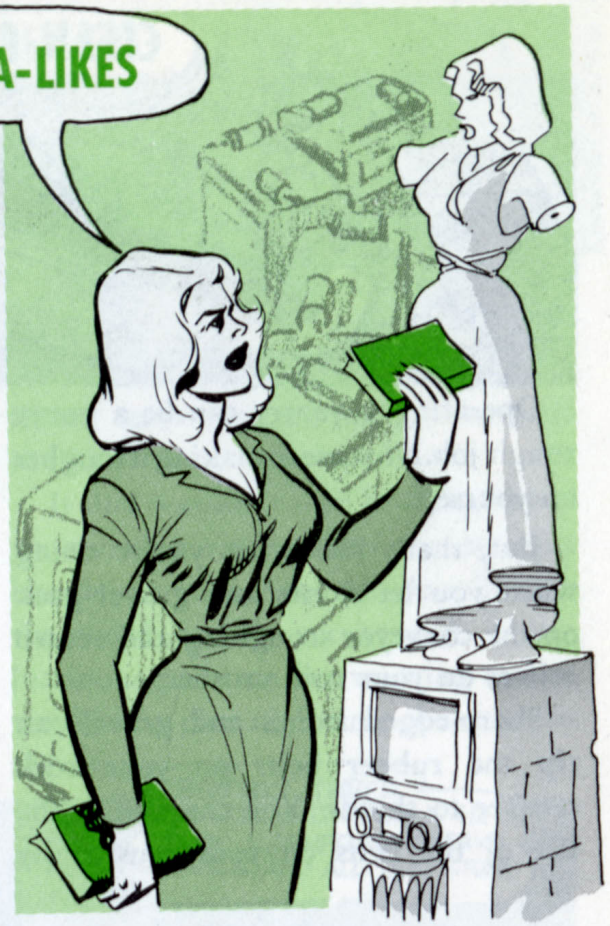
Caterpillar Model 339 engine, FSN 2815-678-6105, is supplied as a replacement for the D8800 engine on the Cat D-7 tractors.

Only one trouble.

A generator group doesn't come with the engine assembly. If you want to equip your tractor with lights, then you'll have to requisition or buy the generator group, part number (11083) 1L9676, which includes all the accessory drive parts you'll need.

The generator group will set you back about $200.

LOOK-A-LIKES



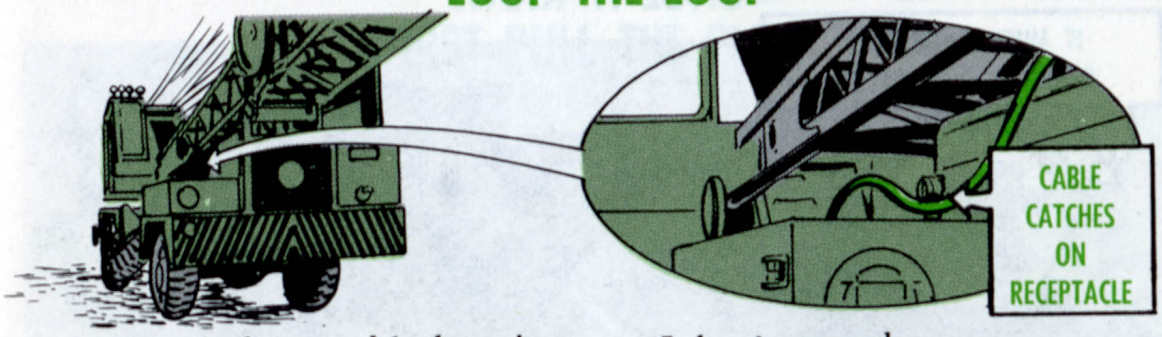
By any other name, the Jeta Incorporated Model MG-536 and the Hol-Gar Model CE-55-AC/WK6 5-KW generators would still be twins.

They're identical except for the canopy or housing. While the TM 5-6115-229 series manuals apply to both models, you can't use the "P" manuals for replacing parts on the housing like doors or latches.

The Jeta Incorporated Model MG-1018 and the John Reiner Model GG-C-10-AC-2 10-KW generators are like peas-in-a-pod, too. You'll find that TM 5-6115-204 series covers both of them.

The Jeta Model used to be a TC responsibility, but—like the Hol-Gar and the Reiner — they're Engineer items now.

LOOP THE LOOP



Stop . . . look . . . and look again.

That's what you want to do before you raise the boom on your Quickway crane.

A careful operator will look twice when he's raising the boom out of the cradle to make sure that the boom cable doesn't catch on the slave receptacle on the engine.

If the cable snags the receptacle, you could lift the panels, receptacle and air cleaner along with the boom.

It has happened.

To keep the cable out of the way, relocate the spring and clamp it to a cross member of the boom so the cable doesn't loop under the boom.

For a quick fix, you can tape or wire the cable to the boom.

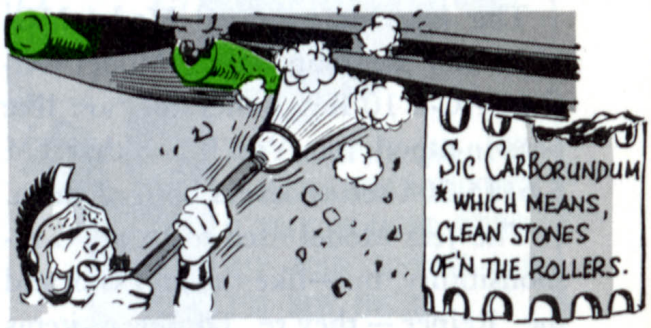
CLEAN ROLLERS

Operating a quarry can be a pretty rough job. No sense in making it tougher on yourself.

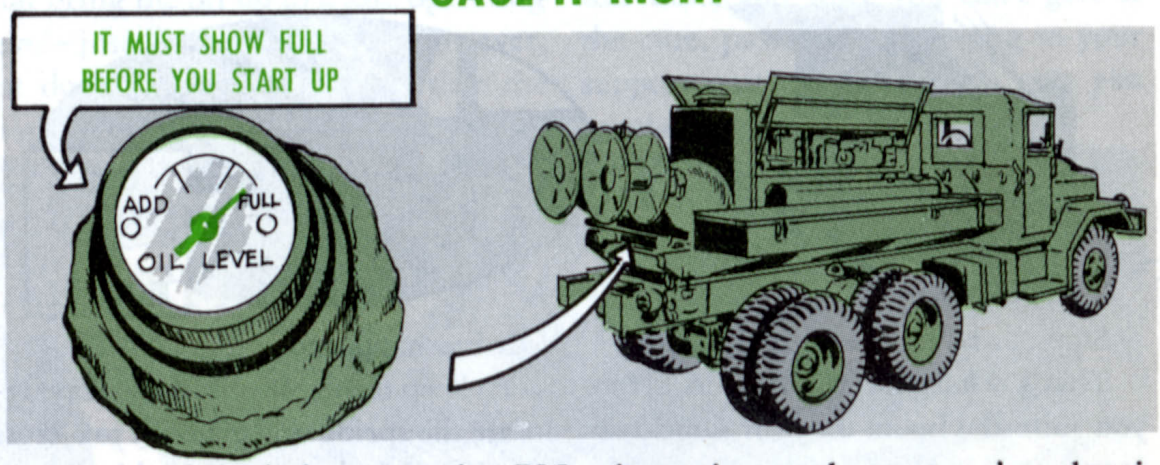
But, that's just what you're doing when you let stones and gravel pack on the conveyor troughing and return rollers on your rock crusher.

Sharp-edged stones and gravel can rip the rubber belts on your rock crusher to shreds. You can add to the life of the belts on your crusher by making it a point to check and clean these rollers every time you shut down.

This helps cut down the wear and tear on the belts.



GAGE IT RIGHT



As part of the before-operation PM on your Harris Model J210-FED air compressor, you check the air compressor oil level gage and make sure the needle reads FULL.

So far, so good. But, when you start it up, you find the needle flips to ADD OIL.

You can't add oil until you drain the air receiver tank, so you shut the rig down. As soon as you shut down, the needle moves back to FULL — you're back where you started.

Sooo . . . oo . . . o, as long as the gage reads FULL when you're shut down, you're OK.

But, be sure you check it before you start up.

Stop . . . halt . . . desist . . . whoa . . . no . . . let go!

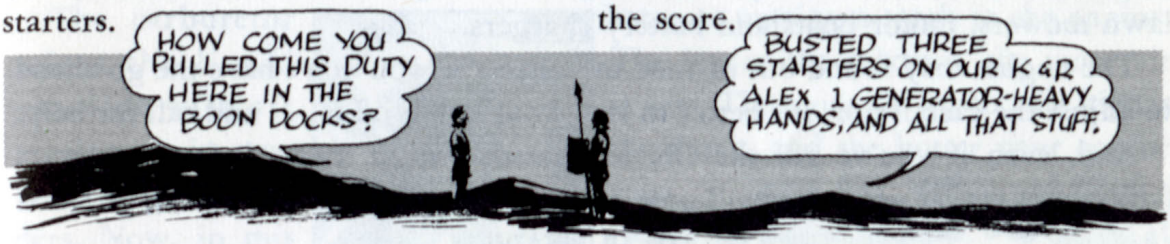
As any smart operator knows, there's a time to lay hold and a time to let go.

And, you want to remember this when you grab the starter on your 45 KW Kurz & Root Alex 1 generators. When you pull the starter handle out, you got to let go in a hurry as soon as the engine fires.

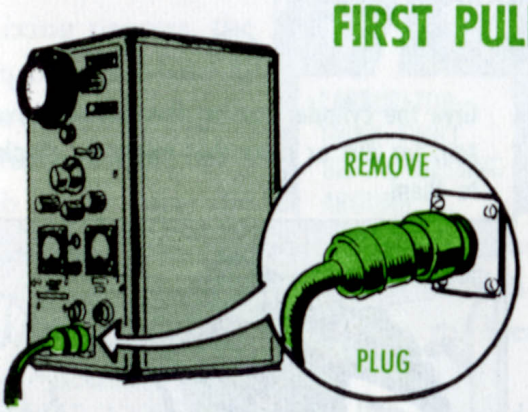
Heavy hands make for busted starters.

This 45 KW precise-power rig builds up speed real fast. If you hold the handle out after the engine's running, the starter stays engaged and chews itself to bits.

It sure wouldn't hurt to stencil a let-go warning right under the starting handle on your Alex 1's—just in case the word doesn't get around. Using luminous paint on the warning stencil would also clue nighttime operators to the score.



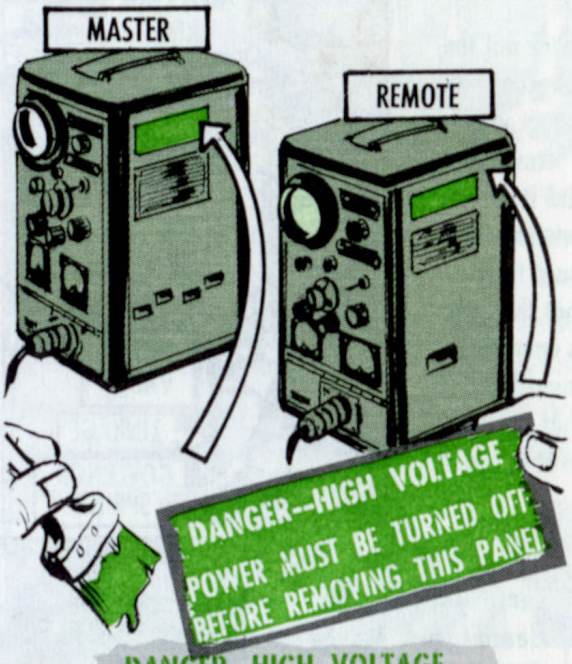
FIRST PULL THE PLUG



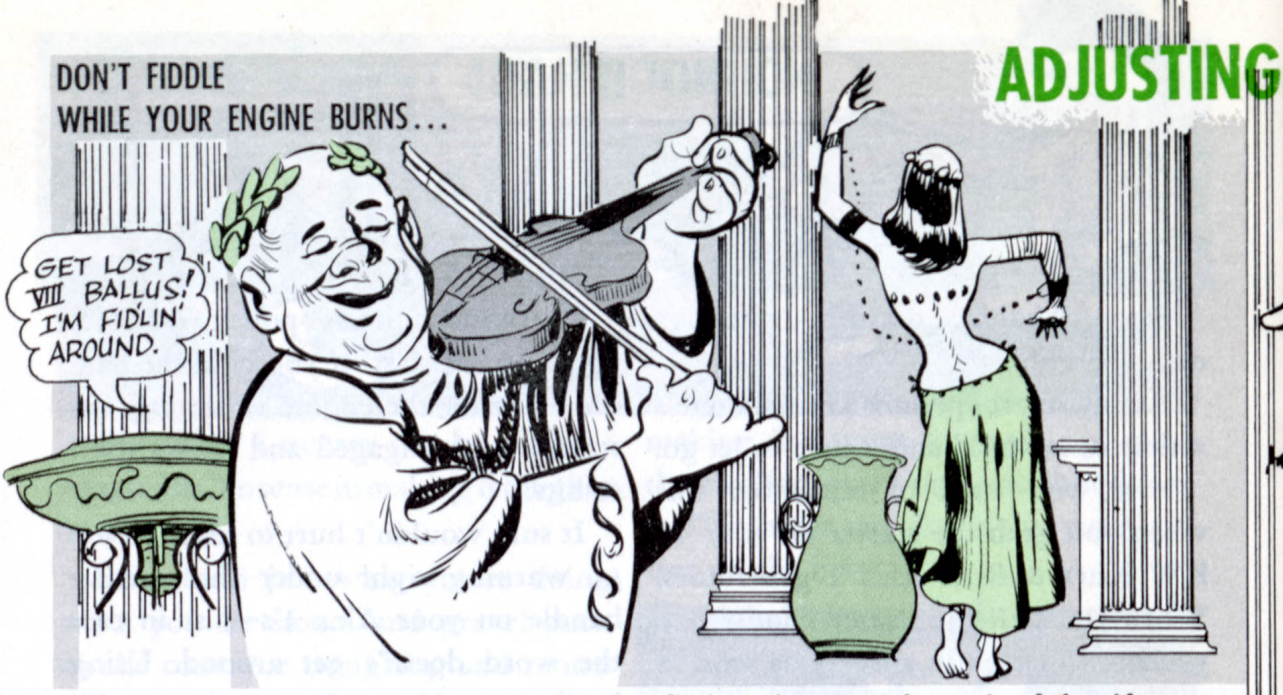
Tellurometer insides are "HOT WIRE!"

So you always pull the power plug before you open the side panels on either the Master or Remote Tellurometers, to replace tubes or do any other inside service.

Meanwhile, play it double safe for all concerned by stencilling this warning on all Tellurometer side panels—



DANGER--HIGH VOLTAGE
POWER MUST BE TURNED OFF
BEFORE REMOVING THIS PANEL



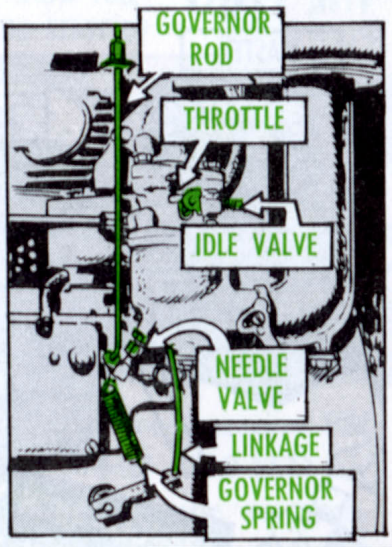
You can wind up with a lot more headaches than you bargained for if you play with the carburetor on your small gasoline engines—like the ones on your lawn mowers, motor boats and battery chargers.

The engine may sound out of tune to you, but if you don't have the go-ahead to adjust the carburetor, it's better to keep your hands off it . . . and call for help.

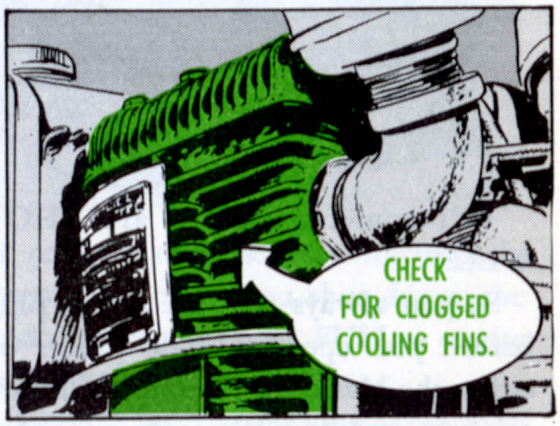
And, even if you've got the OK to adjust it—think twice before you start fiddling. If you're not sure you know what you're doing, go slow, man, go slow.

LET 'ER BREATHE

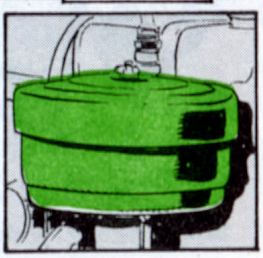
(1) Check out the governor linkage before you grab a screwdriver and start twisting. You want to see that the linkage is operating smoothly and that it's not bent or binding.



(2) Give the cylinder cooling fins the once-over, too, for dirt or crum that might be clinging to them.

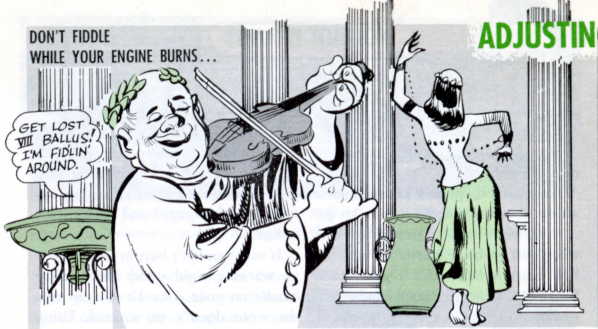


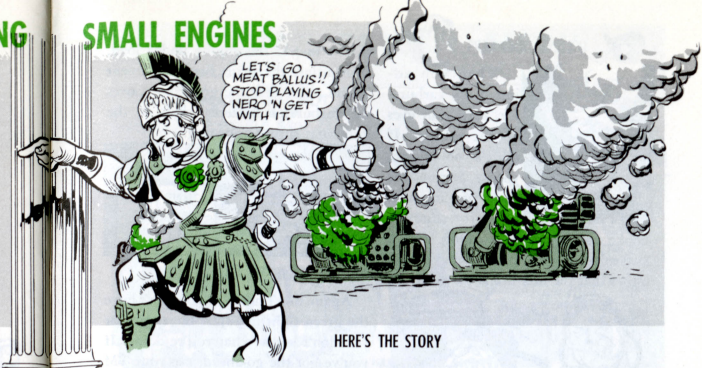
(3) Same goes for the air cleaner, too. Maybe all the engine needs is a chance to breathe.



If you check it out and you've still got troubles, latch onto a TM for your rig and follow the adjustment routine like it says.

ADJUSTING SMALL ENGINES





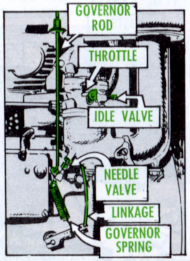
You can wind up with a lot more headaches than you bargained for if you play with the carburetor on your small gasoline engines—like the ones on your lawn mowers, motor boats and battery chargers.

The engine may sound out of tune to you, but if you don't have the go-ahead to adjust the carburetor, it's better to keep your hands off it . . . and call for help.

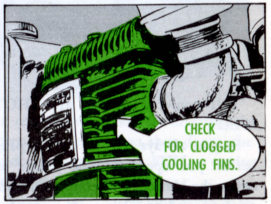
And, even if you've got the OK to adjust it—think twice before you start fiddling. If you're not sure you know what you're doing, go slow, man, go slow.

LET 'ER BREATHE

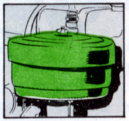
① Check out the governor linkage before you grab a screwdriver and start twisting. You want to see that the linkage is operating smoothly and that it's not bent or binding.



② Give the cylinder cooling fins the once-over, too, for dirt or crum that might be clinging to them.



③ Same goes for the air cleaner, too. Maybe all the engine needs is a chance to breathe.



If you check it out and you've still got troubles, latch onto a TM for your rig and follow the adjustment routine like it says.

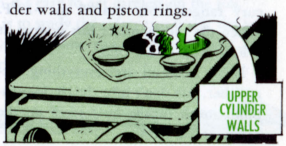
HERE'S THE STORY

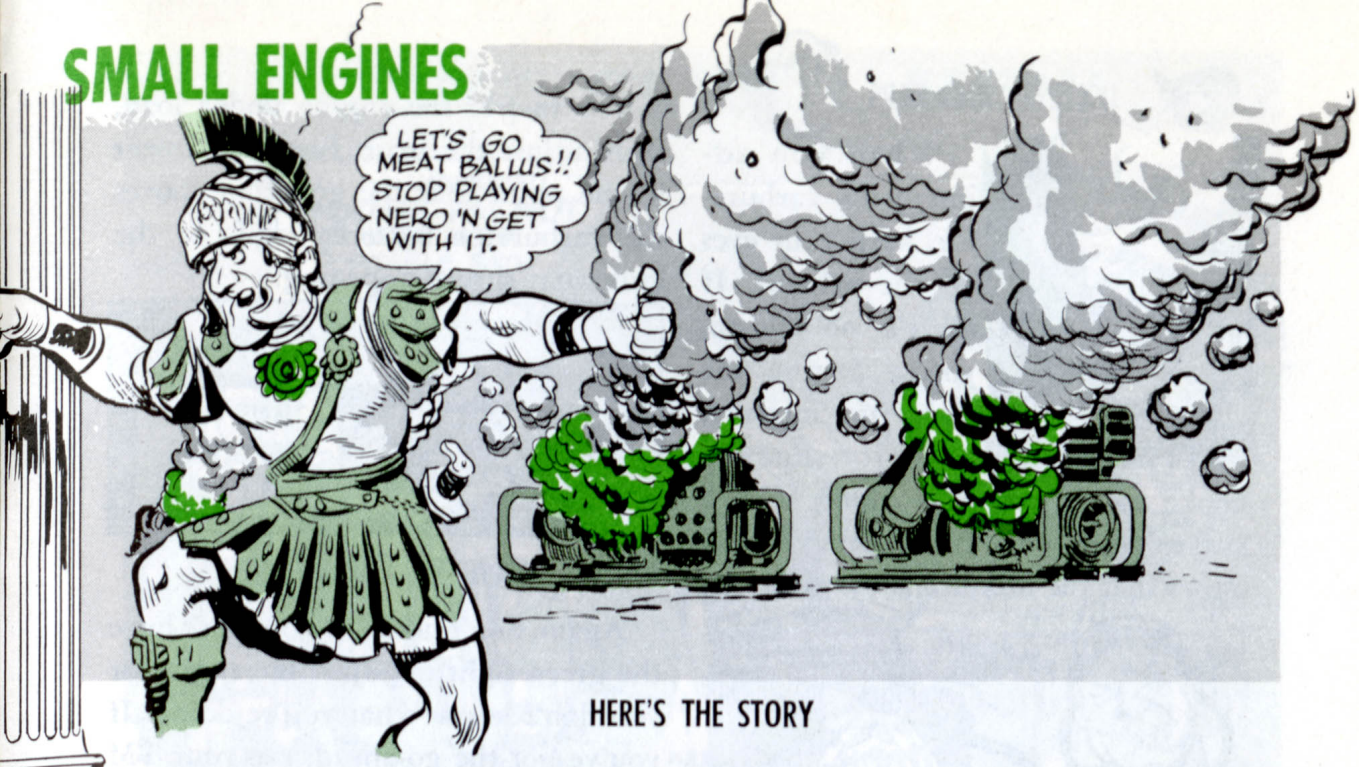
The carburetor mixes the liquid gasoline with air moving on its way to the engine cylinders. Now, in this mixing process, the liquid gasoline is turned into vapor. The carburetor's job is to vary the proportion of gasoline to air so that mixtures of varying leanness or richness are supplied to the engine to meet your needs.

Adjusting the carburetor is give-and-take between economy and power. Starving the engine for the sake of economy will only cost you money in the long run—because you'll burn 'er up. On the other hand, too rich a diet wastes gasoline. The excess gasoline cuts the piston lube and finally drains down the cylinder wall into the crankcase.

When you run 'er too lean, it's the same as putting a torch to the engine. The leaner the mixture, the more air it gets. The more air it gets, the higher the flame, and the hotter your engine runs.

With too much heat, you start to run into lube troubles. At the higher temperatures, the oil thins out, you get less sealing action, and your pistons get hotter than a cap pistol on the Fourth of July. The upper cylinder wall gets no lube which causes damage to the cylinder walls and piston rings.





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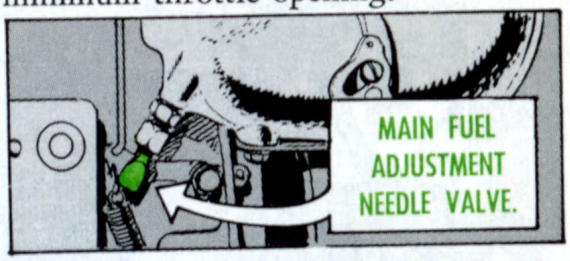
USE EYES AND EARS

When you adjust your carburetor, keep your eyes on the exhaust. If there's no smoke, you're getting the right fuel mixture. A white, uneven smoke means you're working with a lean mixture while black, heavy smoke shows that the mixture is too rich.

Listen to the sound of the engine too. If it's running uneven, after reaching normal operating temperature, then an adjustment is needed. A good way to do this is to put the engine under load, then adjust the main fuel adjustment to the point that the governor moves the carburetor butterfly shaft to the minimum throttle opening.

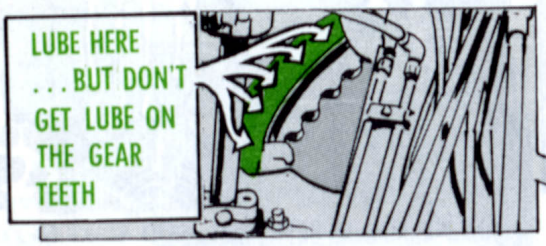


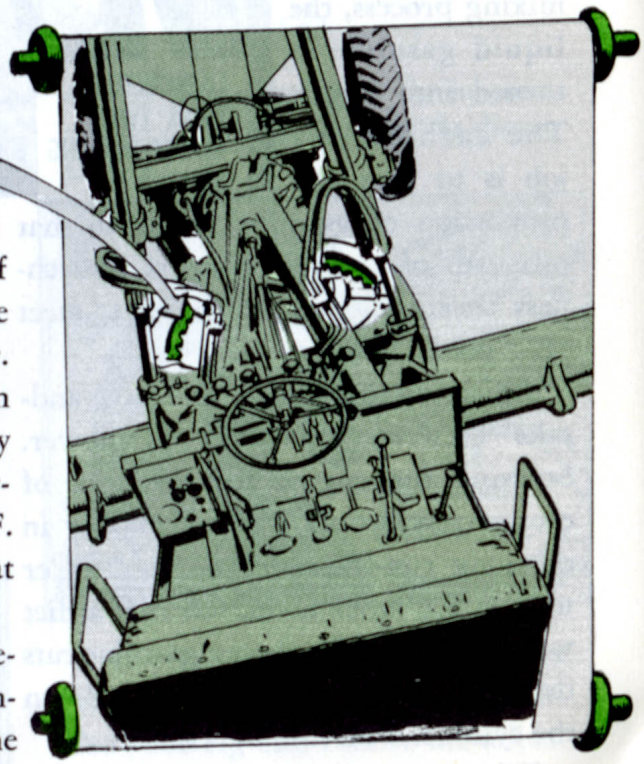
HAVE THE KNOW-HOW

Again, don't fiddle, if you don't have the green light to adjust the engine or you don't know what you're doing. If you've got the go-ahead, use your TM as a guide . . . otherwise, sound off for help.

This will keep both you and your rig from being burned.

CIRCLE LUBE





Lubing the circle should be part of the operator's DAILY PM on the Huber-Warco Model 4D road grader.

To do the job you use OE 30 when the temperature's expected to stay above +32°F and OE 10 when the mercury ranges from +40°F to −10°F. When the thermometer hits bottom at 0°F to −65°F, use OES.

Never slosh oil over everything. Remember, you don't lube the circle-turn-pinion-teeth or the gear teeth on the inside of the circle.

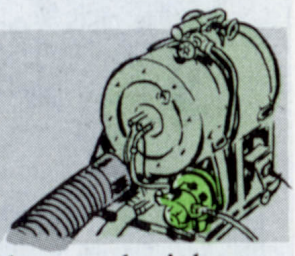
COME CLEAN, MEN!

There're a few things you ought to know about that new M-1958 portable 8-showerhead bath unit that's been laundering birthday suits in your outfit lately.

One of the first things you gotta do is watch your big feet when you're loading or unloading the water heater.

If you're not careful you could snap off the fitting between the fuel pump and fuel filter. This is one of the tenderest parts of the whole unit.

Another part that can't take it on the earlier models is the glass in the burner sight hole. No real sweat, though. When the old one gets broken, order a new one. FSN 4530-467-5794 will get you a cap assembly with a strong-enough glass.

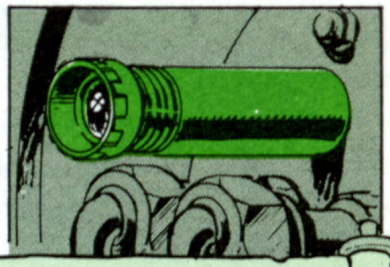


These bath units are so simple to run it's easy to get careless on the job.

The surest way to keep yourself alert is to study the safety tips inside the front cover of TM 10-4510-201-10 (Jan 60) every time you touch this baby. Especially the one about purging the burner.

Here's what to look out for: OVER

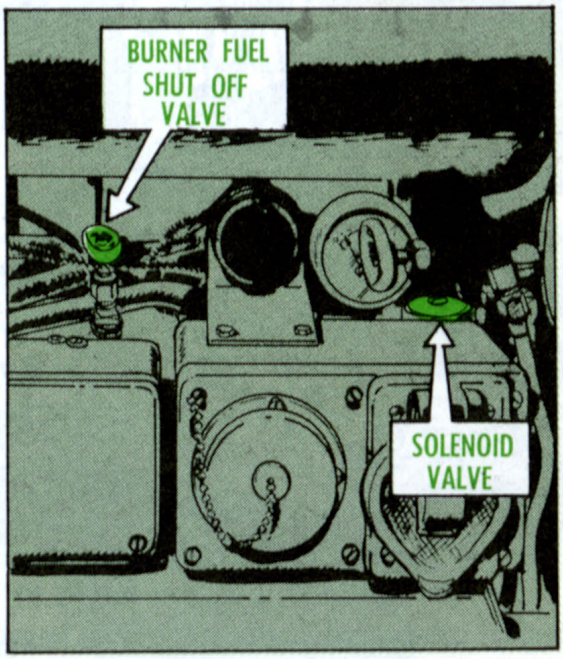
Before you light the burner, check the electrodes to see that they light up. You do this by peeking through the electrode sight glass in the burner head. There should be a continuous spark jumping between the electrodes.

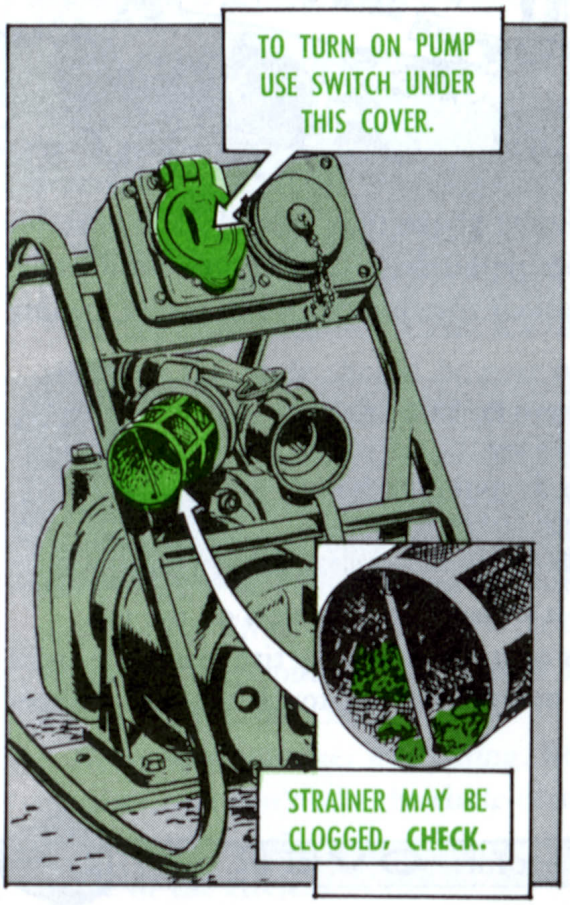


If the burner fails to light pronto—even though you have the right fuel pressure and the fuel valve is open—take care. 'Cause a supply of fuel can build up in the combustion chamber . . . enough to explode the water heater once the fuel finally ignites.

Here's what to do if the fuel doesn't light immediately when the fuel and solenoid valves are opened:

Shut off the burner fuel supply valve and let the unit run till the blower has had time to force all the fuel out of the combustion chamber exhaust. This'll take about 15 minutes.

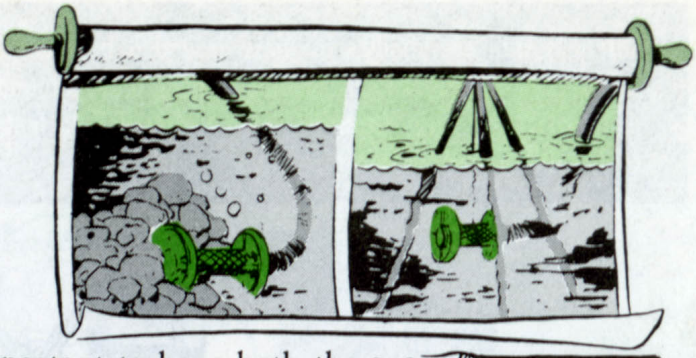


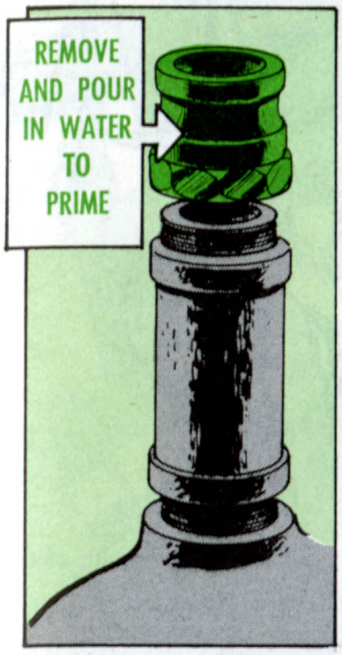


Another thing, if you turn on the water pump switch and nothing happens, double-check the pump. It should turn clockwise—the way the arrow points on the housing. If it turns the wrong way, get your mechanic to rearrange the wiring so it turns the right way.

Could be, too, that the suction strainer's not under water the way it should be . . . or is clogged. You've got to watch these strainers. They're too coarse to keep out all foreign matter that can damage the impeller.

To get rid of this problem, use the methods suggested in TM 10-4510-201-10. Use stones to make a protective barrier in front of the strainer, or hang the strainer from a tripod made of tree branches.

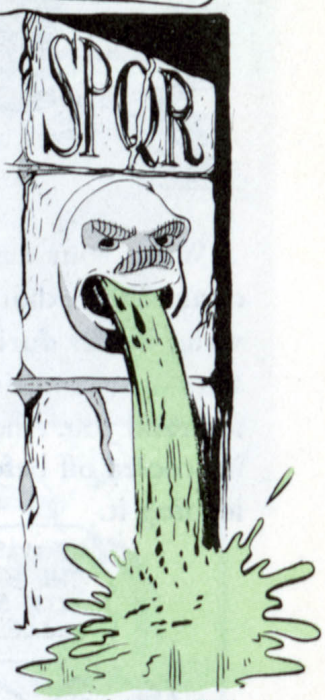




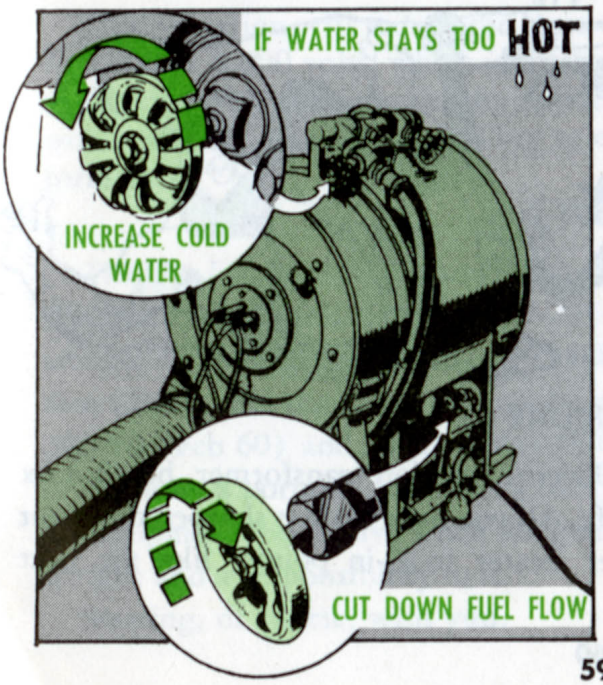
It's important to have both the suction strainer and water pump strainer in good condition at all times. An extra sharp look-see while doing before-and-after-operation PM can save you a heap of work later with pump failure.

And speaking about the pump . . . it'll need two or three minutes running before picking up prime. It takes about a gallon of water to fill the prime port.

So, don't waste time. If the pump doesn't prime itself right after you start it, **you** prime it. Very simple: Just remove the quick-coupling connection from the prime port and pour in a pail of water.



Incidentally, if your shower unit doesn't have an hourmeter, no problem. Follow the monthly and semi-annual maintenance schedule. These are the same as the 100- and 500-hour checks, you know.

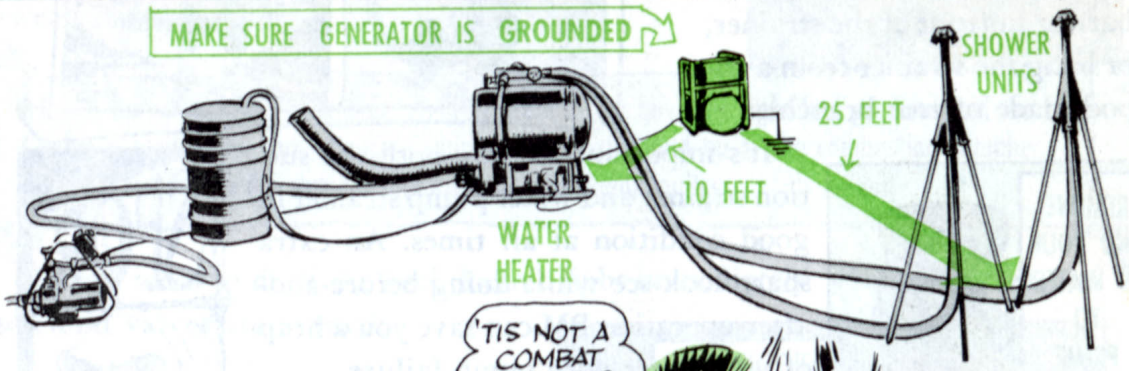


Be careful you don't make lobsters out of your customers. If the water gets hotter'n 120 degrees and the unit doesn't cut off automatically like it should, act quick to shut it off by hand.

You do this by reducing the fuel supply to the burner and increasing the cold water to the manifold. In other words, turn the fuel control valve clockwise and the water blender valve counter-clockwise.

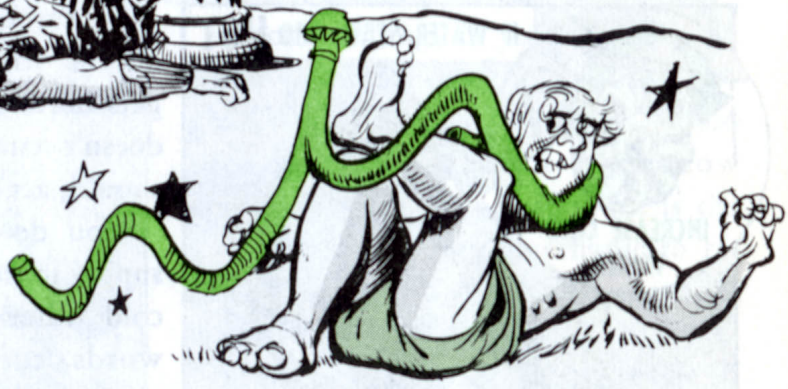
Natch, if the automatic temperature control doesn't work right, you give it a good eye-balling and get a new one, if need be.

Safety is sure everybody's business around a bath unit . . . the operator and every◦guy who uses it. You gotta make sure the engine generator's grounded before you use it. And see that it's at least 10 feet away from the water heater and 25 feet from the shower area. That generator could jolt a guy to his ancestors.



Warn your men to steer clear of the exhaust duct of the water heater during and right after operation. It's hot enough to brand you. And make sure it's cooled off before you go loading it.

Of course, you never operate the water heater in a closed building less'n you pipe the exhaust gasses outside. And you never clean the bath equipment or parts with gasoline.



And while you're at it, caution the guys against making monkeys of themselves on the shower stands. They're not built to take it.

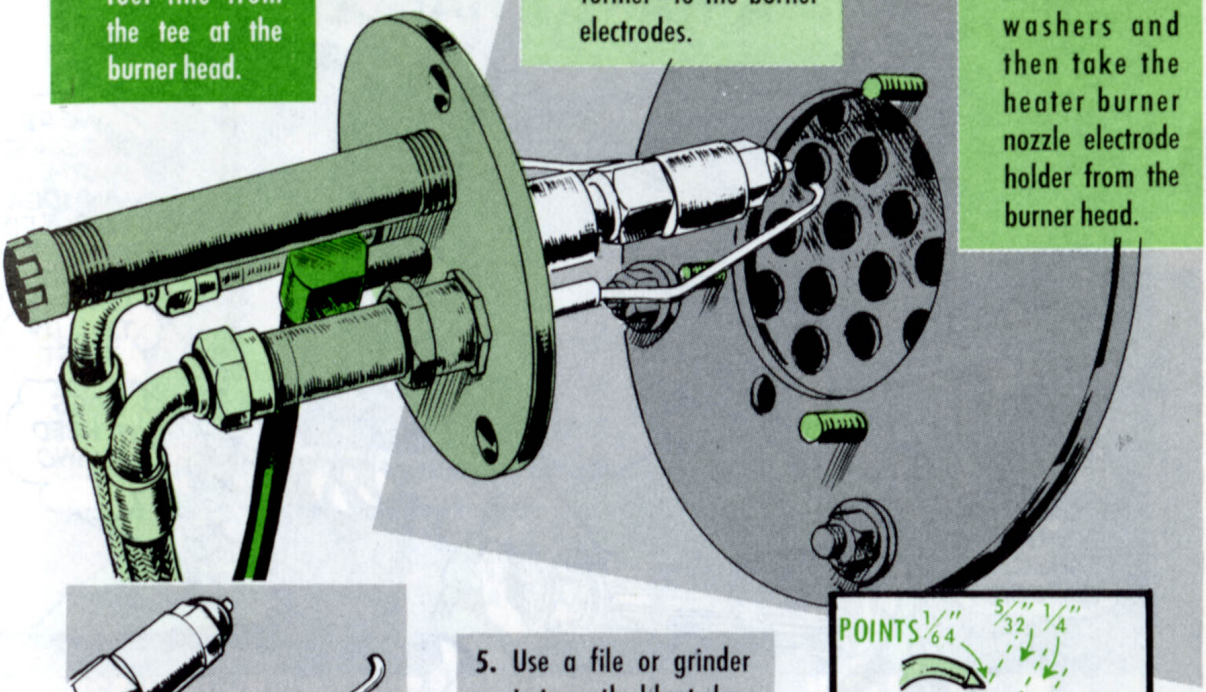
GE TRANSFORMER FIX

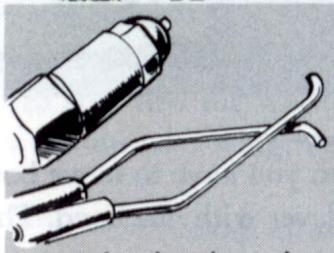
If you have a unit with the General Electric ignition transformer, here's a fix that'll give that transformer a longer life. All you have to do is sharpen the blunt ends of the electrodes on the burner heater to $\frac{1}{64}$-in points, like the next page shows.

1. Disconnect the fuel line from the tee at the burner head.

2. Disconnect the two lead assemblies—electrical ignition transformer—to the burner electrodes.

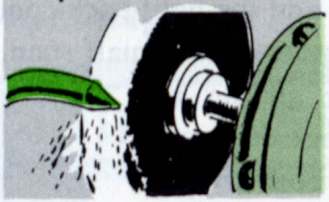
3. Remove the three ¼-in, 20-thread hexagon nuts and lockwashers and then take the heater burner nozzle electrode holder from the burner head.

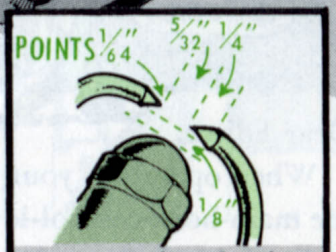




4. Take the electrodes from the water heater burner nozzle and electrode holder.

5. Use a file or grinder to taper the blunt electrode ends to 1/64-in points.





6. Now replace the electrodes and position the points to these dimensions.

This operation will reduce the crest voltage and overload on the transformer to 7,000 or 8,000 volts, which it can handle with no sweat.

Like was said, though, this fix applies only to General Electrics. Newer units won't need any messing with. They're equipped with heavy duty electric transformers.

DO-IT-YOURSELF PUBS

There're plenty of pubs loaded with savvy to help you keep the M-1958 and its generator on the ball. TM 10-4510-201-10 (Jan 60) contains operator's PM and trouble-shooting charts and the -20 (Feb 60) has the MAC (Maintenance Allocation Chart). For the same dope on the engine generator get hold of TM 5-6115-200-10 (Feb 60) and its -20 (May 60).

Y'know, a portable bath unit's likely to be one of the few luxury-type pieces of equipment you'll have when the going gets rough. Every Joe in the outfit has a right and a responsibility to it.

Starting, of course, with you.

CONTRIBUTIONS

ADD A HANDY HANDLE

Dear Editor,

When operating your crane, there comes a time when you have to move both the main-hoist-control-lever and the haul-back-control-lever with one hand. This makes it kind of tough on guys with a small span.

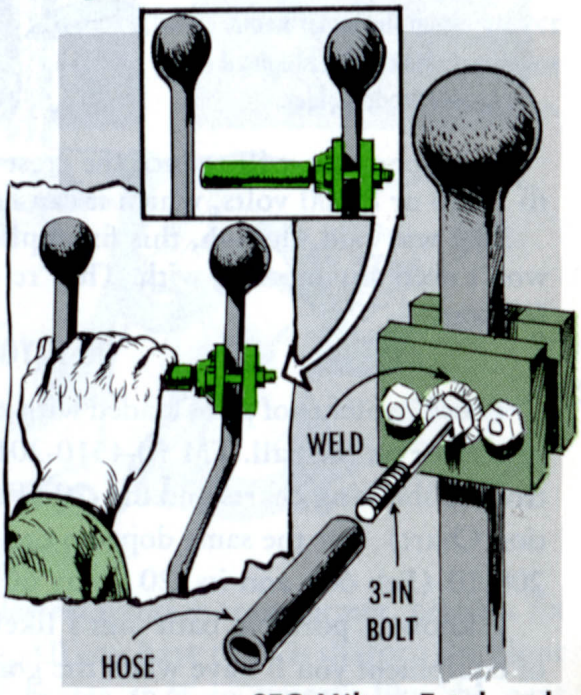
We got around this by adding a handle to the main-hoist-control-lever so even a little guy can grab both levers at the same time.

To make the handle, all you have to do is scrounge a couple of small scraps of ¼-in steel, a couple of capscrews and nuts, a 3-in bolt, and a small piece of hose to fit the bolt.

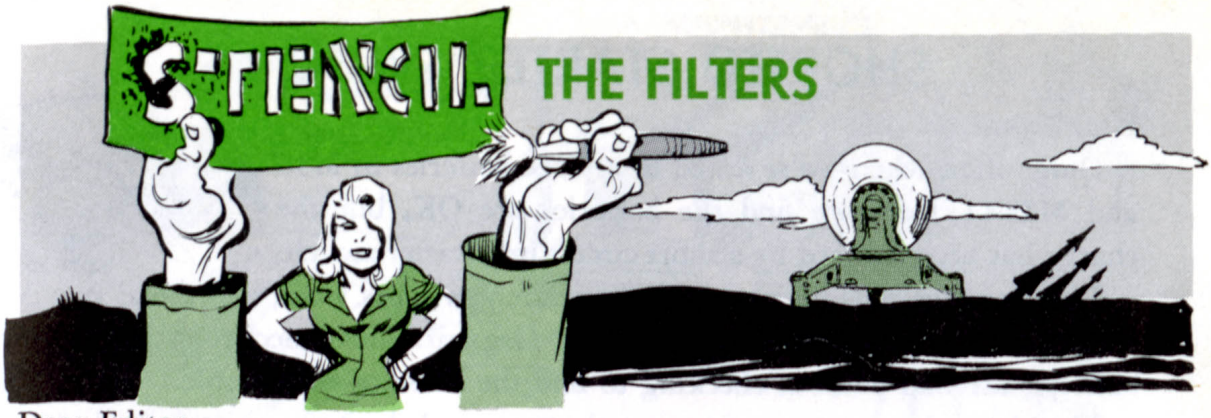
Weld the bolt to one piece of steel. Then, drill a couple of holes in the steel for the capscrews. Now, bolt the metal to the main-hoist-control-lever about three inches from the top.

There's your handle.

Of course, this is not necessary on all models and it may not be possible on some.



SFC Milton Estabrook
46th Eng Bn (Const)
Fort Hood, Texas

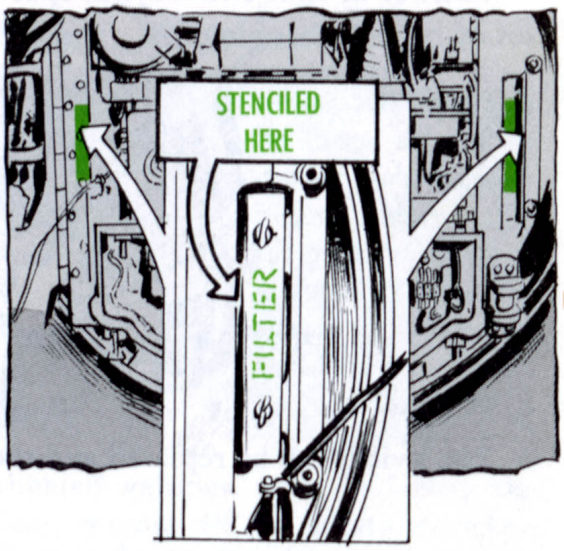


THE FILTERS

Dear Editor,

I was glad to see you mention on page 63 of PS No. 98 about those two air conditioning filters being in the Nike-Hercules track radars. You sure can run into trouble if you don't know they're there.

And to make sure the maintenance personnel in the IFC area don't overlook the filters, the guys at sites in this area stenciled the word "FILTER" between the two wingnuts.



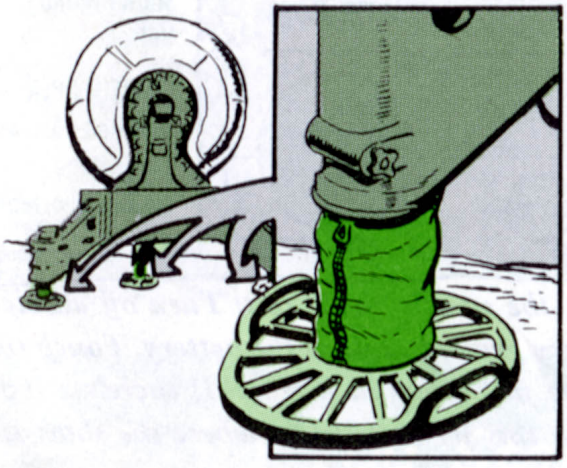
Ray Bedard
Camp Kilmer, New Jersey

ZIP...THE JOB'S DONE

Dear Editor,

We've licked one maintenance job that used to take a lot of time.

Age, accidents and what have you have a way of putting holes in the canvas boot covering the leveling jacks on our Nike-Hercules target and missile track radars. The real rub comes in taking the bum one off and putting on a new one.

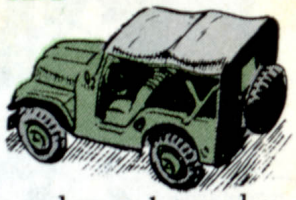


It means taking time to dis-emplace the radar . . . raise the leg . . . and remove the foot plate. Then when you have the new boot on, you do everything over again in reverse.

What we did was have our support unit split our boots and sew in a zipper. Now it only takes a few seconds to take off and put on each boot.

A.A. Group
APO 331
San Francisco, California

SHORTED STARTER SWITCHES



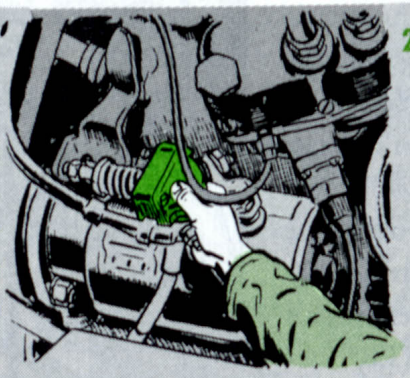
Dear Editor,

Quite often when we're asked to replace batteries in M38 and M38A1 Jeeps we find the batteries are OK, but the charge has been drained by a short circuit in a starter switch.

This happens when contacts in the starter switches wear, and metal powder mixes with corrosion inside the switches. Organizational mechanics assume the batteries are bad without checking to find the cause of the trouble.

There're at least two ways to spot these grounded starter switches and save a lot of battery changing:

1. Feel the starter switch near the contact terminal where the battery cable is attached before starting the engine. If it's warm or hot while the engine's cold, there's a short in the switch.

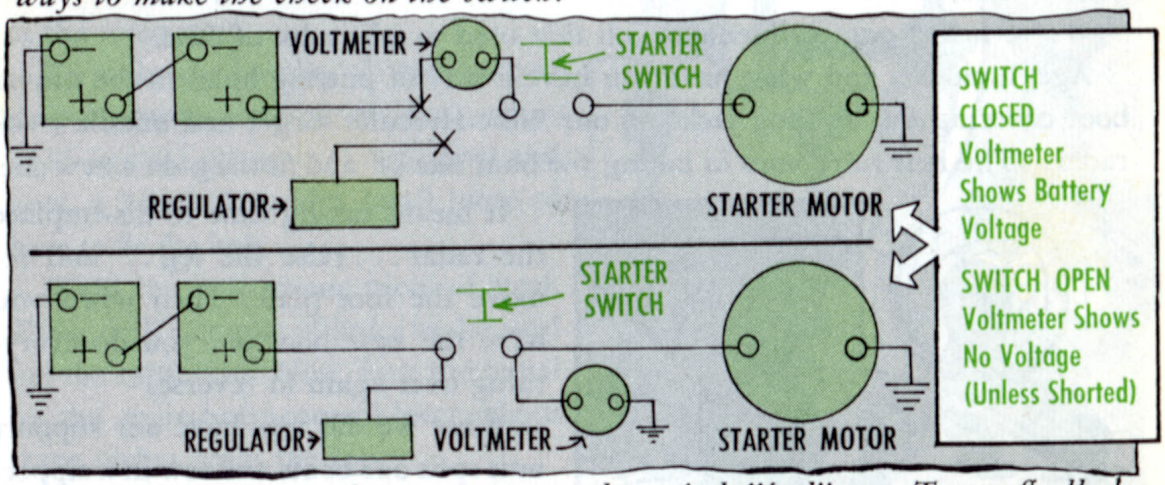


2. Remove the battery ground cable and disconnect battery and regulator cables from the starter switch terminal. Then connect a voltmeter in series between the battery positive cable and the starter switch and replace the battery ground cable. Any movement of the voltmeter needle will show there's ground loss in the switch.

The switch can be replaced and the batteries re-charged if necessary.

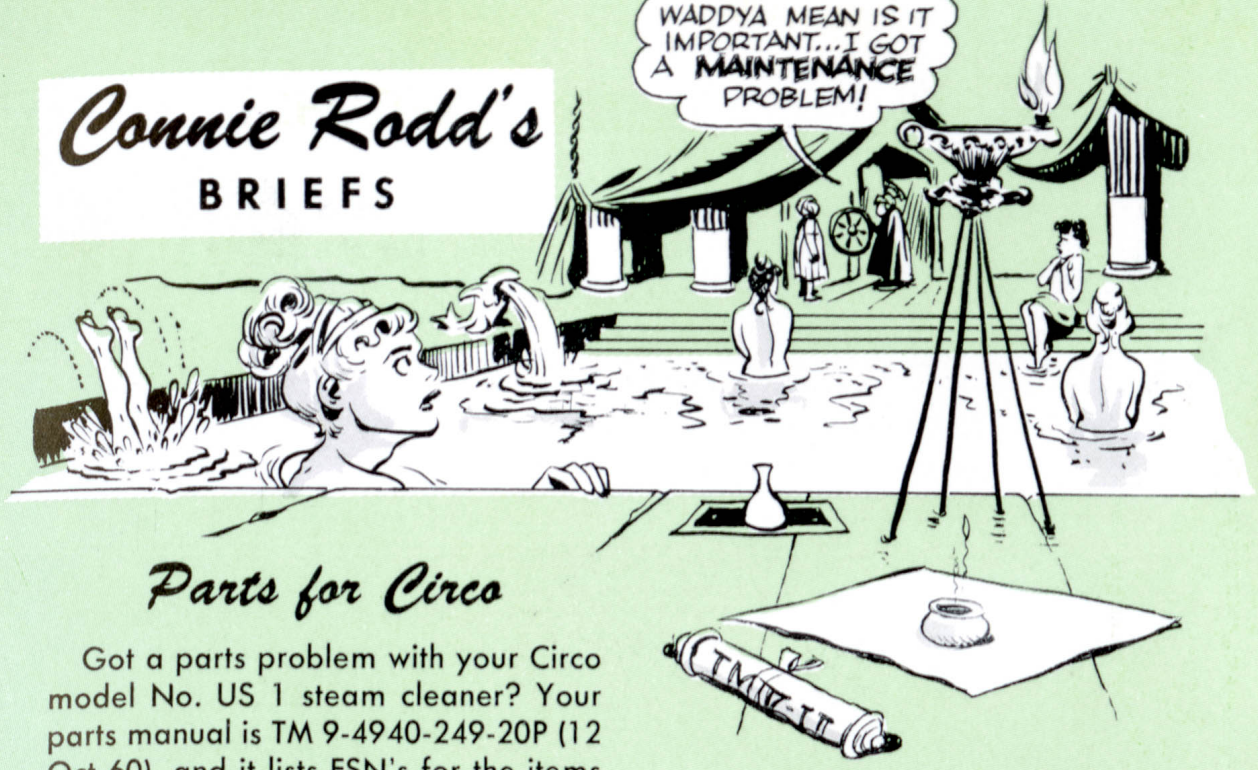
Fred A. Kruse
Fort Carson, Colo

(Ed Note—Both tests are good. The "feel" test is simpler, but doesn't draw as sharp a bead on the trouble. The voltmeter test can help locate a bad contact adjustment and also tell you if the switch has a short. Here are two different ways to make the check on the switch.



Another test that's almost as easy as the switch "feel" test: Turn off all electrical switches and disconnect the battery ground cable at the battery. Touch this cable a few times to the terminal you've just removed it from. If there's a short in the system you'll get a small arc. But this won't tell you where the short is.)

Connie Rodd's BRIEFS



Parts for Circo

Got a parts problem with your Circo model No. US 1 steam cleaner? Your parts manual is TM 9-4940-249-20P (12 Oct 60), and it lists FSN's for the items needed to keep 'em steaming. The cleaner's the one wearing FSN 4940-268-9789.

It's a fact

Let's set the record straight. People who use reinforcing screws to fix wooden stocks and handguards on weapons want to remember these numbers. FSN 1005-523-3523 gets the 3/32-in dia screw . . . and FSN 1005-719-0954 is for the ⅛-in dia screw.

Aching back

Watch that truck when you're backing into a loading dock to pick up supplies. The shock's terrific when the tail hits the dock—even lightly. Could smash the tailgate hinges or bend the gate so it won't shut. Never back in large vehicles, unless you have a helper to stand by as signal man.

Safety check

This is the word on DA Form 461 for Q maintenance and spot check of wheeled vehicles. Item 2, Safety Devices, means **all** the safety devices—whether they're listed in another place on the form or not. You must be able to check 'em as operating right before you take the vehicle for a road test. 'Course, the same also goes for a wheeled trailer if that's what you're checking out.

The right book

Next time you need specific info on stuff for cleaning, gluing or scraping, be sure you look in TM 9-247 (Oct 60) "Materials used for Cleaning, Preserving, Abrading, And Cementing Ordnance Materiel And Related Materials, Including Chemicals." It supersedes TM 9-1007, which used to give you info on the above.

Would You Stake Your Life on the Condition of Your Equipment?

Your Keys TO MAINTENANCE

If you don't have these maintenance "bibles", order them on DA Form 17 from your publications section.